PRODUCT REVIEW ▸
Microsoft's Visual Basic 5.0

It puts zip into building Web applications.
BUYER'S GUIDE, *page 91*

WEB SITE REVIEW ▸
Shopping online for a PC

We checked out Dell, Wal-Mart and more.
THE INTERNET, *page 61*

COMPUTERWORLD

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April 14, 1997 · Vol 31 · No 15 · 142 pages · $3/Copy $48/Year

Oracle app users must migrate

▸ Year 2000 fix for current products nixed

By Randy Weston

ORACLE CORP. will discontinue support for all versions of its application package that aren't year 2000-compliant, *Computerworld* has learned.

Toward the end of next year, users will have to migrate to at least the latest version of the business application package, Version 10.7.

The No. 2 enterprise applications vendor will break the news this week at the Oracle Application User Group conference in Nashville. Oracle is working with the OAUG to firm up the schedule for discontinuing support.

Nearly all of Oracle's approximately 3,700 users will be affected, because the only version of the vendor's application package that is completely year 2000-compliant is Oracle Applications 10.7, which was released two months ago.

Oracle customers with maintenance contracts will be upgraded for free but will have to

Oracle, page 16

LOSING SUPPORT

Tentative dates on which Oracle plans to discontinue support of its application packages

Version	Date
Oracle 10.4	June 31, 1998
Oracle 10.5	June 31, 1998
Oracle 10.6	Dec. 31, 1998

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Year 2000 glitch hits banks
Credit cards with 2000 expiration dates cause problems. Page 2

E-MAIL COSTS CREATE CONCERN
Administrative budgets increase as usage spreads. Page 4

Terminal philosophy
Microsoft pitches Windows-based network computer. Page 6

Microsoft plays catch-up on support

By Laura DiDio

THE GOOD NEWS is that Microsoft has dramatically toned up its once-flabby technical support in recent years. But some users said services can be spotty and prohibitively expensive.

Microsoft Corp. has transformed its support program from near-nonexistence four years ago into a cohesive technical support group that provides services such as online telephone assistance and interactive self-help software utilities, according to interviews with 14 users at Fortune 1,000 firms.

"In early 1993, it was an oxymoron to say that Microsoft had even minimal technical sup-

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Netscape faces tough transition

▸ Shift to groupware, E-mail poses danger

By Kim S. Nash and Justin Hibbard

NETSCAPE Communications Corp., the company that vaulted to fame with its World Wide Web browser two years ago, faces serious challenges to its cootinued success.

Netscape must finesse a critical product transition this quarter as it shifts its focus from simple browsers and server software to new groupware and electronic-mail packages.

But before the company can prove itself, it must recognize some warning signs.

Netscape stock has nose-dived 50% in the past three months as more than a dozen Wall Street analysts lowered their sales and profit expectations.

At least six large user sites recently tossed out Netscape Navigator in favor of Microsoft Corp.'s Internet Explorer brows-

Netscape, page 121

COMPUTER SAVANTS

Autistic programmers such as Sara R. S. Miller have amazing mental assets but can be hampered by poor social skills

MEET COMPUTER PROGRAMMER Sara R. S. Miller, 42. She's autistic, which means everyday occurrences such as traffic jams may be cause for panic. Yet Miller and some others like her have extraordinary powers of concentration and memory that make them brilliant programmers.

The problem is that their own poor social skills and employer ignorance often keep autistics out of a field in which they can excel.

Senior editor Gary H. Anthes focuses on autistics who have cleared astonishing hurdles to work in IS. See **In Depth**, page 95.

"If you had only listened," writes one IS professional to his former boss. Following up on a Feb. 24 story on why IS pros **changed jobs or stayed put**, we asked our readers what they would say if they could **tell off** their ex-boss. They didn't hold back.

Managing, page 86

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It's a line-by-line search—
and the clock is ticking.

Now that everyone else has panicked
and jumped ship, who's going to help you
steer clear of the year 2000 problem?

UP FRONT

Go for it, Larry

To: lellison@oracle.com
Fr: paul_gillin@cw.com
Re: Your proposal to buy Apple

Larry:

It's not like you to ask for advice. But since you did, I'll offer my two cents.

Take Apple. Please.

Really. Someone's got to do something fast. One of the industry's best innovators is sliding into the abyss and needs you to pull it out.

Look under your sofa cushions and scrape together enough money to give stockholders a 50% premium. Then buy that sucker and turn it around.

Apple's only argument against your takeover plan is that CEO Gilbert F. Amelio needs time to execute on his vision. What vision? The one he spelled out in a rambling two-hour speech at Macworld Expo? That wasn't a vision, it was a software license agreement. The one that prompted him to announce plans for massive layoffs nearly a month before actually going through with them? The one that told customers they'd have a new operating system — if they could just wait a year and a half? The one that brought Steve Jobs back to the company and then didn't tell anyone what the heck he was doing there?

Amelio's vision? What vision?

Apple has some of the best technology in the industry, but it needs a vision to stem the flight of talent and investment. You and your friend Steve Jobs are dripping with vision.

Convince Jobs to return and let him go about recruiting some insanely great programmers. Define a network computer based on the Mac OS. Use your experience battling Microsoft to convince customers that, yes, there is a legitimate alternative to the Wintel standard. Wall Street will go nuts. Macintosh users will breathe a sigh of relief. You'll be a hero.

Buy Apple, Larry. It's too good a company to go down the tubes.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

"What is it, Lassie? Is it Gramps? Is it his hard disk? Is he stuck somewhere, girl? Is he trying to write CGI programs to a Unix server running VRML? What, girl, what?!"

E-mail Rich Tennant at thefifthwave@tiac.net

Year 2000 bug bites credit cards

▸ *Millenium expirations trip up banks*

By Thomas Hoffman and Robert L. Scheier

CHECK THE PLASTIC cards in your wallet or purse. Do any of them have expiration dates of '00'?

Most credit and debit card owners can't use cards that expire in 2000, because merchant systems can't process them.

The IAG Federal Credit Union in Rye, N.Y., for example has received 30 to 40 telephone calls from disgruntled customers. Their Visa debit cards were rejected at area merchants because the cards expire in 2000, said Bruce Simons, IAG's vice president of information services.

The consumer problems have been limited so far because credit-card giants such as MasterCard International, Inc. and Visa U.S.A., Inc. asked their member banks to print 1999 expiration dates until bank systems could accommodate 2000.

Still, there have been some glitches. First USA, Inc., one of the nation's biggest MasterCard and Visa service providers, recently had to reissue cards to a few thousand customers to replace a batch of cards that were sent with "00" dates on them, said a spokesman at the Dallas-based firm.

Purchase, N.Y.-based MasterCard hopes to have its member banks' systems 2000-compliant by July, a spokesman said. But the problem won't be fully resolved until merchants fix their card readers to accept "00" as an expiration date, industry experts said.

"The banks themselves will pretty much be able to handle [the year 2000]," said Bruce Hall, a research director at Gartner Group, Inc. in Stamford, Conn. "The challenges will be with the merchants."

Spokesmen for Visa and MasterCard said it is up to the banks that process transactions from merchants to ensure that those merchants' card readers are year 2000-compliant. Visa set a March 31 deadline for its member banks to be year 2000-compliant but is still reviewing reports from those banks to determine compliance levels [CW, Jan. 13].

Jones said he isn't sure if any of Visa's banks have been penalized for missing the deadline.

But one source said as many as 40% of Visa's member banks aren't compliant. □

IBM gives RS/6000 services a boost and a cut

By Tim Ouellette

IBM this week will announce additional price cuts across its RS/6000 server line and unveil a high-end server to keep Unix competitors Sun Microsystems Inc. and Hewlett-Packard Co. at bay.

And for users awaiting 64-bit technology — which competitors are already starting to roll out — IBM officials said 64-bit systems and AIX operating system support are on track for fall delivery. The announcements come as IBM tries to stem the tide of users moving to competing Unix platforms.

"IBM is starting to narrow the gap with the competition, especially in performance," said Brian Richardson, an analyst at Meta Group, Inc. in Stamford, Conn. "These announcements are just the beginning this year as IBM re-establishes credibility for the RS/6000 family."

For example, Tom Bittman, a research director at Gartner Group, Inc. in Stamford, estimated that the RS/6000 is more than a year behind Sun and HP in terms of scalability features.

To address that, IBM is offering a symmetrical multiprocessing (SMP) model, the F50, to replace the G40 model. The F50, which will be available later this month, can hold as many as four PowerPC 604E processors and has a completely different SMP design than the G40.

Pricing for the F50 starts at $28,900.

The RS/6000 price cuts come from IBM's decision to drop RS/6000 memory and disk drive prices and include AIX in the box.

That reduces by 30% the upgrade and new systems prices, compared with January's prices, said Don Johnson, RS/6000 server marketing manager at IBM in Austin, Texas. □

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•COMPUTER SAVANTS: An online complement to our In Depth story has extensive resources for coping with autism, both personally and in the workplace.(www.computerworld.com)

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Lotus targets Office users by slashing SmartSuite prices

▸ *Plan offered to volume buyers of business suite*

By Lisa Picarille

TARGETING corporate users of suite market leader Microsoft Corp.'s Office, rival Lotus Development Corp. is offering its SmartSuite 97 at dramatically reduced prices.

The offer, which runs from April 15 through June 30, lets Office users buy the Windows 3.x, Windows 95, Windows NT or OS/2 version of SmartSuite, which usually costs $149, for between $59 and $79, depending upon the number of copies bought.

The reduced price also includes a maintenance contract that entitles users to a year's worth of bug fixes, patches, enhancements and upgrades.

The limited-time offer applies only to users who make a volume purchase. To get SmartSuite for $59 with one year of maintenance, users must purchase a minimum of 100 SmartSuite 97 licenses. To get SmartSuite for $79 with two years of maintenance, users must buy at least 50 copies of the suite.

> "Fifty-nine bucks is a good deal. Microsoft is now our second choice, and that is because of cost."
> – Ralph Marshall, US Airways

By comparison, users in Microsoft's Select customer program get Office without any maintenance for $174 or with two years of maintenance for $224.

Ralph Marshall, manager of technology deployment in the information services department at US Airways, Inc. in Winston-Salem, N.C., which has 2,000 copies of SmartSuite and approximately the same number of Office seats, said the pricing is an attractive deal.

"Price is a key driver, and at this low cost, it just encourages us to buy more. Fifty-nine bucks is a good deal," Marshall said. "Microsoft is now our second choice, and that is because of cost."

The new SmartSuite pricing could prompt mixed-shop users such as Marshall to give Lotus more consideration, said Chris Le Tocq, an analyst at Dataquest, a market research firm in San Jose, Calif.

"It's not like all Microsoft Office shops will switch," he said. "But in mixed divisions that are looking at serious bucks to move everyone onto Office, Lotus' pricing will at least cause these companies to seriously consider buying SmartSuite before moving to Office."

Le Tocq added, "Anything Lotus can do, even if it just captures a small percentage of the market, will have a large effect on Lotus."

In an attempt to further ease the transition from Office, SmartSuite 97 includes support for Office file formats and a new Word Menu Help Expert that provides word processing users with the Lotus Word Pro equivalents of Microsoft Word functions.

According to Dataquest, Lotus last year held 25.5% of the worldwide suite market as measured in units sold, compared with Microsoft's 59%. But Lotus held just 7.4% of the market as measured by revenue, compared with Microsoft's 85.3% □

Exchange fee plan scrapped

By Barb Cole-Gomolski

RESPONDING TO customer complaints, Microsoft Corp. is backing off a plan to charge World Wide Web surfers a fee to access public folders on its Exchange messaging server.

Browser users who don't have an Exchange mail account can access Exchange public folders for free, Microsoft confirmed last week.

Public folders are like electronic filing cabinets and are used to store information on a related topic in one place.

The move is a shift from an earlier plan announced at the rollout last month of Exchange 5.0. Then, Microsoft officials said users without an Exchange mail account would have to pay about $54 for a client license to tap in to Exchange public folders.

"The [earlier] decision to charge for anonymous user access was a mistake," said Greg Scott, information systems manager at the College of Business at Oregon State University in Corvallis, which has a campuswide Exchange deployment under way. "I'm glad to see they reversed on this one," he said.

With the licensing fee lifted, the school will be more able to invite people to retrieve information from the university's public folders and participate in newsgroup discussions hosted on Exchange, Scott said. □

ONLINE SERVICES

E-mail flood creates logjam at America Online

By Stewart Deck

MILLIONS OF electronic-mail messages sent to and by America Online, Inc.'s subscribers last week were figuratively stamped "Return to sender" and bounced back to their originator.

America Online spokeswoman Tricia Primrose said "an unusual spike in E-mail traffic" Monday created a logjam that completely plugged up the Vienna, Va.-based service's E-mail system. She said network technicians worked throughout the week to break up the gridlock by adding new Simple Mail Transfer Protocol gateways. By midweek, a trickle of E-mail started to find its way through the clog.

Since introducing flat-rate pricing last December, the amount of E-mail America Online handles has doubled to more than 10 million messages per day.

"This is another indication of [America Online's] network falling apart," said Barbara Ells, an analyst at Zona Research, Inc. in Redwood City, Calif. As soon as the company patches one network hole, another one pops open, Ells added.

"They're in a react mode now rather than a planning mode," she said.

Ells and other observers said the purchase of CompuServe Corp.'s network, which is for sale, would solve many of America Online's network problems. "CompuServe has a better infrastructure and a much more scalable, Internet standards-based network," Ells said. □

IBM/Lotus ready Java rollout

By Barb Cole-Gomolski

IBM NEXT WEEK will announce plans to implement Java across its software product lines and describe its vision of how customers can leverage existing IBM hardware and software to build World Wide Web applications.

The company's Lotus Development Corp. division is expected to roll out a Web tool, called BeanMachine for Lotus Notes, for adding content to Web sites without coding.

Lotus is also building a set of Java applets, code-named Kona, and a version of its Notes client for network computers.

IBM and Lotus have had massive Java development efforts under way and have talked about their intention to be leading providers of Java-based software for network computers.

Earlier this month, Sun Microsystems, Inc. announced that it will incorporate Lotus' Infobus technology as a means of sharing data among Java applets or JavaBeans on a Hypertext Markup Language document.

"I think we'll see [network coroputers] become a large market," said Michael Zisman, vice president of strategy at Lotus. "But [network computers] wouldn't have a prayer without Java." □

Women's WORK?

Despite reports that the number of women in information systems is declining, 50% of IS staff members at Amdahl Corp. are women, says Tama Olver, chief information officer (shown at right).

Other female IS managers say they are seeing more women switch to IS careers later in life. What's going on here?

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E-mail traffic, costs hit high-speed lane

By Barb Cole-Gomolski
PHILADELPHIA

ELECTRONIC-MAIL TRAFFIC is rising to a fever pitch in most companies, and so are the costs associated with keeping E-mail up and running.

Users here at the Electronic Messaging Association (EMA) '97 conference said increased mail traffic, heterogeneous messaging networks and client/server migrations are driving up costs.

A recent EMA study showed that it now costs a company about a dollar to send 19 E-mail messages. By 2000, the association predicted that same information technology dollar will buy only about 15 messages.

NEED A BREAK

"We really need to reduce the total cost of ownership for our [messaging] environment," said a systems architect at a pharmaceutical giant based on the East Coast.

The firm maintains multiple messaging directories and is looking to save money by going to a centralized system.

Other companies have seen administrative costs rise following a migration to client/server mail. Madison, Wis.-based American Family Insurance is migrating from a mainframe mail system to Lotus Development Corp.'s Domino and expects administrative costs to rise significantly.

"We currently have three administrators overseeing 17,000 mail users on a mainframe system," said Therese Lawler, messaging analyst at American Family. "When we move to Notes, we're talking one administrator for every 500 users."

But the increased administrative costs will be worth it because the company is gaining access to higher-level collaborative applications, she said.

Dan Blum, principal at Rapport Communication, a consultancy in Washington, said messaging costs are largely tied to the way the network is laid out.

He said using management tools, security systems and directories across messaging and operational systems is key to reducing costs of ownership.

A study published last week by Palo Alto, Calif.-based Creative Networks, Inc. showed that administrative costs for Microsoft Corp.'s Exchange and Lotus' Notes were $83.19 and $61.35 per user, respectively.

Improved messaging and network management tools that let users manage servers remotely, as well as standardization on IP protocols, are expected to help reduce the cost of ownership of messaging systems.

"With standard protocols, you can eliminate a lot of the gateways that are very costly to maintain," Blum said. And over time, client/server messaging should become less costly because of the implementation of Java as a standard for developing collaborative applications.

In the meantime, several users said a version of Domino for OS/390, due at year's end, is one way to rein in some of the costs associated with client/server mail. "[Domino] on the mainframe has some attraction for us," said David Thompson, an analyst in the advanced technology department at Bell South in Birmingham, Ala.

Several users said they would consider tying the bulk of their users to Domino on the mainframe and reserve departmental servers for users who receive a lot of E-mail or participate in collaborative applications. □

MESSAGING COSTS

Total 1996 client/server messaging start-up costs: $3.4M for 20,000 users

Client	46%
Server	31%
Nonrecurring engineering costs	11%
Backbone	8%
Training	4%

Total 1996 ongoing client/server costs: $3.6M for 20,000 users

Staff to manage servers, directories and backbone	71%
Cost of maintaining system integrity	20%
Client software	5%
Server hardware/software maintenance	4%

Source: Rapport Communication, Washington

IS YOUR BACKUP TOUGH ENOUGH FOR THE JOB?

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NETWORK COMPUTERS

Microsoft now says thin really is in

By April Jacobs and Lisa Picarille
SAN FRANCISCO

IN A DRAMATIC strategy shift, Microsoft Corp. last week blessed the network computer concept by unveiling a thin-client plan for machines that will run server-based Windows applications.

While skimping on the details, Microsoft officials told attendees at last week's Windows Hardware Engineering Conference here that its network computer will be like a dumb terminal and offer productivity applications similar to what Oracle Corp. spin-off Network Computer, Inc. is pitching.

The unnamed Windows-based terminal differs from the NetPC, previously proposed by Microsoft and Intel Corp. It is essentially a stripped-down PC with no CD-ROM drive or floppy drive.

NETPC NOT ABANDONED

Microsoft officials said the company will continue to strongly support the NetPC as a PC replacement. The vendor is positioning the Windows terminal as a terminal replacement device.

Several corporate customers briefed by Microsoft two weeks ago said the thin client's specifications include 4M bytes of RAM and read-only memory, a network interface, a graphics display interface, a keyboard and a mouse. The operating system will be a multiuser version of Windows NT, said Windows product manager Phil Holden.

According to Holden, the multiuser version of NT will support all 32-bit versions of Microsoft Office and 32-bit applications from third-party developers, including Corel Corp.'s WordPerfect Office and Lotus Development Corp.'s Notes. Those applications will reside on servers and be accessed through a remote access product, much the way users run Office from a server using Citrix Systems, Inc.'s WinFrame.

Martin Reynolds, an analyst at Dataquest in San Jose, Calif., said the Windows terminal would be a low-cost device, but he warned users not to transfer the cost savings achieved at the desktop to the server, because storage of data on the server is more expensive than it is on the desktop.

But some users see overall thin-client benefits. Ray Peterson, information systems specialist at Wisconsin Indianhead Technical College, said he has been scouting for network computer-based productivity applications that would offer his users electronic mail, World Wide Web access and light word processing since the school decided to go with thin clients for some users.

Microsoft insiders said the company was forced into offering the Windows terminal by increasing demand from users who want to use Windows across their businesses in both desktop PC and thin-client environments. Those users don't want to support multiple operating systems and applications.

Some observers speculated that Microsoft's network computer resistance was based on the fact that Office — its cash cow — wouldn't be able to run on that class of machine. But now that Microsoft officials have said Office will run on the thin client, the only risks are licensing and pricing. □

THIN IS IN

Microsoft's proposed thin-client strategy includes the following:

- An inexpensive terminal-like device without storage
- Office-like multiuser software for E-mail, calendaring, spreadsheets and word processing
- Multiuser version of Windows NT as an operating system

Sybase puts focus on thin clients . . . and off client/server

▸ *Plans architecture to support Java, ActiveX*

By Craig Stedman
ORLANDO, FLA.

GREAT IDEA. Now let's see some real products and pricing.

That was the main message from users last week after Sybase, Inc. detailed long-awaited plans to stitch together its databases, development tools and middleware into a coherent architecture for building distributed thin-client applications with Java and ActiveX components.

Sybase's plans should put it back on a more competitive footing with rivals such as Oracle Corp. and Informix Software, Inc., said attendees at the International Sybase User Group's annual conference here. The strategy also could ease data access complexities and cut the cost of client support and database administration.

But it will be next year before Sybase completes the centerpiece of its ImpactNow architecture: a plan to unify the Emeryville, Calif., firm's databases with common administration tools and a development environment that supports Java and traditional SQL programming.

"I like Sybase's direction, but they still have to deliver," said Greg Cornellier, director of client/server systems development at Healthsource, Inc. in Hooksett, N.H. "What they announced today doesn't help me solve my business problems tomorrow."

The unified Adaptive Server database will start appearing this quarter with a beta version of Sybase SQL Server, which is being renamed Adaptive Server Enterprise. But it doesn't include the promised development environment that combines Sybase's TransactSQL language and the ability to write JavaBeans components into databases, middleware or clients.

JavaBeans support isn't due to appear in beta-test form until the third quarter for Sybase's SQL Anywhere mobile database and the first half of 1998 for both SQL Server and the Sybase IQ decision-support database.

Sybase also didn't disclose how the Adaptive Server strategy will affect its product pricing.

Lombard Brokerage, Inc. in San Francisco runs online trading on SQL Server and wants Sybase IQ for data mining. "There are advantages to being an all-Sybase shop, because you get a certain amount of clout with them," said David Espenschied, Lombard's president. "But we're going to have to wait and see what they charge." □

FUTURE IMPACT

Shipment plans for key pieces of Sybase's ImpactNow architecture

Now
- Adaptive Server Enterprise 11.5 (beta)
- Support for storing images and spatial data (beta)

Q2 1997
- PowerBuilder 6.0 development tool (beta)
- PowerJ Java-based tool (general release)

Q3 1997
- Adaptive Server Anywhere with JavaBeans support (beta)
- Expanded support for specialty data types (beta)
- Jaguar component transaction server (general release)

First half 1998
- Adaptive Server Enterprise with JavaBeans support (beta)
- Adaptive Server IQ with JavaBeans support (beta)

▸ *Delays link to packages such as SAP AG's R/3*

By Craig Stedman
ORLANDO, FLA.

CONCEDING IT can't win the battle to run packaged client/server applications, Sybase, Inc. is pushing back delivery of the key database technology needed by software such as SAP AG's R/3.

DATABASE TECHNOLOGY

Sybase was shooting to add support for row-level data locking to its SQL Server database this year. But executives said at Sybase's user group conference here that row-level locking is now slated for a version of the database — renamed Adaptive Server Enterprise — that won't enter beta testing until the first half of next year.

And it isn't even a lock for that release, because adding support for writing JavaBeans components is a higher priority, officials said (see story at left).

SQL Server locks up an entire database page when an individual record is being updated, while row-level locking closes off only the specific row in which the record is stored. Sybase had long insisted that page-level locking is more secure and reduces server overhead, but several users at the conference said it can force end users to wait to access data.

"That's really the main difference between products like Sybase and Oracle, and the biggest reason why you would want to go with Oracle," said Pam Archer, director of information resources at St. Alphonsas Regional Medical Center in Boise, Idaho.

St. Alphonsas runs its patient data transcription application on SQL Server, and having to wait for locked data is a common occupational hazard. "There really are no workarounds. You just kind of live with it," Archer said. But Sybase's decision to put a higher priority on Java support is hard to argue with, she added.

Sybase's lack of row-level locking also blocks it from competing with rivals such as Oracle Corp. and Informix Software, Inc. for applications based on packaged software.

R/3 doesn't run on SQL Server. PeopleSoft, Inc.'s applications support SQL Server, and The Baan Co. is beta-testing its software with the database. But performance is limited without row-level locking, said Mitchell Kertzman, president and CEO of Sybase in Emeryville, Calif.

Sybase's chance of winning significant business involving R/3 and other packaged applications is "largely illusory," Kertzman said. "Frankly, that was yesterday's battle." Even with row-level locking planned, SAP still isn't committing to port R/3 to SQL Server, he said. □

Oracle vs Informix
Reality vs Fantasy

When is real life better than your wildest dreams – or should that be Informix's wildest dreams?

		Informix Universal Server
OLTP Benchmark	**World Record TPC-C, 30,390 tpmC**	**0 (Zero)**
Data Warehouse Benchmark	**World Record TPC-D, 1,241 QthD**	**0 (Zippo)**
Parallel Processing	**SMP, Clusters, NUMA, MPP**	**SMP Only**
Platforms Supported	**Unix, NT, Netware - 90 Total**	**2 Unix**
General Availability	**Since February 1996**	**Not Yet**
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Look both ways in network traffic

▸ *Layer 3 switching may not be necessary*

By Bob Wallace

NEXT-GENERATION Layer 3 switching, which builds advanced routing functionality into regular LAN switches, is overkill for many user networks.

So before users throw big bucks and bigger bandwidth at perceived problems — a common practice, analysts said — they should closely examine the traffic on their networks.

Cisco Systems, Inc., Cabletron Systems, Inc. and others last week joined the growing list of vendors that are pitching Layer 3 switching to address network congestion. Layer 3 switches can offload existing routers or eventually replace them. Pricing starts at roughly $40,000.

But some users who have taken the time to check their network traffic said there isn't an immediate need to leap to Layer 3 switching.

"The first thing users need to do is learn what's going on in their network. Without network monitoring and baselining, you're making decisions blindly, which can be expensive," said Joe Askins, a network manager at Arizona State University in Tempe.

He was referring to the process of regularly monitoring traffic on networks to see what the traffic flow looks like during different hours of the day or days of the week.

PATRICK MCFADIN

Users need to "learn what's going on in their network"

Instead of continually throwing bandwidth at problems that he wasn't sure existed, Askins invested in systems that help his staff monitor in real time more than 250 LAN segments across four campuses. The data is used to create network health reports that are posted on the World Wide Web.

These systems are typically workstation software, but some of them can run on PCs.

"We found that we only needed a little regular LAN switching in our network and that we could do simple upgrades to [existing] equipment to meet traffic demands without moving to new and expensive technologies," Askins said.

"We have vendors come in to bluff my staff and bosses into buying more advanced technology packages, and we just whip out our reports to show them we're not in trouble," he said.

SIMPLE NEEDS

Like Askins, Eric Ferguson has been checking his network and has found that he needs only basic LAN switching, not advanced Layer 3 functionality. And he needs the switching only in his data center to support a server cluster.

"Without network monitoring, how could you present a new plan to senior management and possibly say it's better? You've got to know what you have before you decide what to do with it," said Ferguson, a senior LAN manager at Maryland Insurance Group in Baltimore.

Information systems managers use network monitoring to keep an eye on traffic traveling across Ethernet, Token Ring, Fast Ethernet and Fiber Distributed Data Interface LAN segments.

Maryland Insurance has been using shared 16M bit/sec. Token Ring links to its server cluster, but increased traffic has pushed the limits of the connections. Ferguson is looking at basic LAN switching to solve his bottlenecks. "We don't need Layer 3 switching," he said.

Analysts said network monitoring and baselining is a must.

"A user would be crazy to head out in any one direction without measuring traffic flows first," said Lynn DeNoia, director of consulting services at Strategic Networks Consulting, Inc. in Rockland, Mass., and a former chief information officer. "Without knowing where you stand today, you can't project what might happen tomorrow. Planning becomes impossible." □

Network monitoring choices

Users looking to get a handle on their network traffic have two options: network monitoring or baselining.

Baselining is the process of regularly monitoring traffic on networks to provide IS managers with a snapshot of what the flows look like during different hours of the day or days of the week.

IS managers must first decide whether they want to buy the systems to perform these tasks internally or outsource them.

Analysts said the forever can create a strain.

"There's more to [it than] just buying the packages that collect network data," explained Lynn DeNoia, director of consulting services at Strategic Networks Consulting in Rockland, Mass.

"You need the staff to run them and the expertise to interpret the information they collect," she said.

Alternatively, users can turn to third parties such as International Network Services, Inc. in Sunnyvale, Calif., and Charter Systems, Inc. in Waltham, Mass., which will perform network baselining for users.

Consultants tend to offer these services as part of larger projects, although a la carte offerings are available.

Pricing for monitoring and baselining services varies widely. Pricing is based primarily on the size of the user's network and how much analysis and interpretation of collected data is required, analysts said.

— Bob Wallace

SHORTS

Apple updates Mac OS

Apple Computer, Inc. last week announced an updated version of its Macintosh operating system. Called Mac OS 7.6.1, the update improves the reliability, stability and performance of the operating system, officials said. Apple's Power Macintosh 4400, 5500, 6500, 7300, 8600 and 9600 lines will now ship with Version 7.6.1.

Group fights WebTV buy

A nonprofit group in Palm Beach, Fla., has asked the U.S. Department of Justice to block Microsoft Corp.'s acquisition of WebTV Networks, Inc. on the grounds of "anticompetitive behavior." Tony Martin, executive director of the Committee to Fight Microsoft, said, "We have asked the Justice Department to deny them permission to go through with this purchase, because we don't want Microsoft to use their money or their technology to injure competitors." Greg Shaw, a spokesman for Microsoft, said because the company doesn't view Martin as credible, the press release issued by the committee "does not warrant comment."

Dow Jones, Microsoft team up

Dow Jones & Co. and Microsoft Corp. last week said they would jointly develop and market integrated financial and transaction systems for financial institutions. New York-based Dow Jones will tap Microsoft consultants as it revamps its Unix-based proprietary system to connect real-time financial information and historical data to customers running Internet-based systems.

IBM unveils 56K 'net kits

IBM said tomorrow it will ship its 56K Modem Internet Kit with U.S. Robotics Corp. X2 technology. IBM said it also plans to release modem kits containing technology from companies pushing a rival 56K bit/sec. format backed by Lucent Technologies, Inc.

Social Security shuts Web site

Responding to a public outcry over privacy issues, the Social Security Administration last week shut down its World Wide Web service that offered personalized earnings records and benefits estimates. The agency will hold public forums during the next 60 days to gather testimony from security and privacy experts.

Report raps IRS security

The Internal Revenue Service "continues to have serious weaknesses in the controls used to safeguard IRS computer systems," according to a General Accounting Office report released last week. Problems included 6,400 magnetic tapes and cartridges that couldn't be accounted for and a lack of disaster recovery plans. Also, the IRS can't effectively detect whether workers are "browsing" through confidential data, the GAO said.

IP switch

Cabletron Systems, Inc. last week bought a $20 million stake in Ipsilon Networks, Inc. and agreed to license the Sunnyvale, Calif., vendor's Internet Protocol switching technology for use with its LAN switches. The Rochester, N.H.-based Cabletron had used Cisco Systems, Inc.'s IP switching software, which speeds processing of IP traffic, until Cisco revoked the license in a competitive dispute earlier this year.

Web group to help disabled

The World Wide Web Consortium last week launched an initiative to make the Web more accessible to disabled people. The Web Accessibility Initiative calls for developing descriptive video and captioning enhancements to Hypertext Markup Language.

Micron, Compaq talked buyout

Micron Technology, Inc. and Micron Electronics, Inc. in Boise, Idaho, last week said it has had preliminary discussions with Compaq Computer Corp. about a potential acquisition. Micron added that it isn't engaged in active discussions with Compaq, and no offer has been received. Micron Technology makes a variety of dynamic RAM chips, and Micron Electronics makes PCs.

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Microsoft

Symantec plugs Norton Utilities security hole

By Sharon Machlis

SYMANTEC CORP. last week said it has fixed a reported security hole in Norton Utilities that could allow a script downloaded from the Internet to wreak havoc on a user's computer.

The problem affected Norton Utilities 2.0 for Windows 95, Symantec officials said, and resulted from the way Norton implemented ActiveX support. A module within Norton, Tuneocx.ocx, could be controlled by scripts from World Wide Web sites or even electronic-mail attachments. The scripts could then instruct the Norton module to issue commands such as erasing files or reformatting a hard drive.

A patch now on the Symantec Web site, www.symantec.com, prevents Tuneocx.ocx from being accessed over the Internet, said Tom Andrus, senior product manager at the Cupertino, Calif., firm. Individual users can automatically download the fix with Norton's LiveUpdate feature, he said.

Between 500,000 and 1 million people use Norton Utilities 2.0, Andrus said.

Rival McAfee Associates, Inc. in Santa Clara, Calif., discovered the flaw as part of its research into ActiveX behavior and security, spokesman Mark Coker said.

While investigating products that use ActiveX, researchers observed that Norton Utilities 2.0 had ActiveX code that could be triggered by a Hypertext Markup Language script. They tried using their own scripts to control the ActiveX code and discovered that any scripts written in Common Gateway Interface (CGI) or Microsoft Corp.'s Visual Basic could issue commands to the Norton module that would run the Windows Dialog box, make registry changes, rename files and the like, said Gene Hodges, director of antivirus marketing at McAfee.

HOW NORTON UTILITIES 2.0 SECURITY HOLE WORKED

- The "System Genie" within 2.0 includes a component written in Activex called Tuneocx.ocx
- Tuneocx.ocx was configured to accept commands from internal scripts, but external scripts could direct it as well
- Scripts written in CGI or Visual Basic could instruct the "System Genie" to issue commands to reformat a hard drive or search a user's PC for data
- Symantec's patch prevents Tuneocx.ocx from accepting commands from scripts via the Internet .

There has been much controversy surrounding the ActiveX security model that counts on "signed" applets to ensure they come from trusted sources. But the hole found by McAfee completely bypassed that protection by allowing scripts — not applets — to control ActiveX code already residing on a user's machine. Such holes can be plugged by preventing ActiveX code from accepting instructions from scripts, Hodges said.

Microsoft spokesman Cornelius Willis said the quick turnaround time from problem to solution — about 24 hours — showed the power and flexibility of the ActiveX programming environment. He noted that the issue wasn't with ActiveX security itself.

Critics, however, said ActiveX has separate security flaws by allowing downloaded applets to have free rein on a user's computer. "You can do almost anything at all in ActiveX," said Gary McGraw, co-author of *Java Security: Hostile Applets, Holes, and Antidotes*. Even without this new hole, he added, "you could already do the most horrendous things you can think of." □

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HP map short on details

By Jaikumar Vijayan

HEWLETT-PACKARD CO. last week unveiled a long-term blueprint to help corporations move from big iron and proprietary platforms to PCs and highly scalable servers that run Windows NT and Unix.

But the announcement was short on specifics and failed to elicit much more than a muted response from some users.

SENDING A MESSAGE

HP's so-called Pervasive Solutions Foundation is an attempt by the Palo Alto, Calif., company to present an integrated enterprise message to its customer base. It encompasses everything from mobile and PC products to enterprise servers, compiler technology, Unix/NT interoperability and massively parallel systems based on the emerging 64-bit HP/Intel Corp. IA-64 chip architecture.

"Creative ideas are fun, but if they don't have any meat in them, they are worthless," said Doug Eltoft, chairman of HP's Interworks in Iowa, a user group that represents 10,000 HP technical users.

"Obviously I am rooting for them to succeed, but we would like to see more specifics," he said.

"These are all admirable goals, but until they deliver the products, who cares?" said Fred Mallet, principal of Fame Computer Education, a consultancy and training institute in Corpus Christi, Texas.

An HP spokesman said the company seeks to "give users a framework within which to put all the little announcements and products" that will concern these technologies.

During the next few years, for instance, HP will release a range of high-end symmetrical multiprocessing (SMP) and massively parallel processing (MPP) servers based on IA-64 and HP's PA-RISC architectures. HP initially will extend scalability of its Unix servers to support up to 16 PA-RISC processors in an SMP configuration and up to 2,048 chips in an MPP configuration.

Servers based on the fully merged Intel/HP architecture that run both Unix and Windows NT will become available around 2000 and will support up to 256 IA-64 chips in an SMP configuration and 4,096 chips in an MPP configuration.

The merged environment will have more than 50,000 common applications and a common management environment.

"As representatives of a diverse HP community, we are very interested in the impact [of the announcement] in terms of investment protection, scalability and reliability," said Jeff Odom, chairman of HP's Interex user forum that represents more than 20,000 users worldwide.

If HP succeeds in merging the PA-RISC and Intel processing platforms to run Windows NT and Unix applications side by side, "it definitely is a persuasive story" to tell, according to Andrew Allison, editor of "Inside the New Computer Industry," a newsletter in Carmel, Calif. □

HP's blueprint for the future includes:

- Technologies for Unix/Windows NT integration from desktop to data center.
- Enterprisewide security spanning Unix, Windows NT and legacy environments.
- Compiler technologies for Unix/NT. Common development environment for Unix.
- Web-enabled platforms and devices.
- Scalable SMP servers and MPP servers based on IA-64/PA-RISC running Unix/Windows NT.

Compaq to focus servers on E-commerce

By Mindy Blodgett

COMPAQ COMPUTER CORP. made a raft of announcements last week aimed at raising its Internet profile and changing its laptop marketing strategy.

At its Innovate '97 conference, Compaq announced technology partnerships with 15 Internet software developers, including Microsoft Corp., to develop electronic commerce applications for Compaq Computer servers.

The Houston-based company also announced the development of a fast server for speedy online transactions, called the Compaq Accelerator Server technology.

WORD OF CAUTION

Industry analysts cautioned that some of the Compaq announcements aren't ready for prime time.

"Anything that will speed up use of the Internet is appealing to corporations. But this product is only in alpha. Many of their competitors, such as Hewlett-Packard, will probably come out with products, too," said Laurie McCabe, an analyst at Summit Strategies, Inc., a consultancy in Boston.

Information on when the accelerator server will get to market isn't available.

Dennis Bosma, information systems manager at Kahler Realty Corp. in Rochester, Minn., said there is a lot of interest in Internet commerce. But he agreed that the problems are "speed and security. ... Technology that makes these things easier is interesting, but nothing is bulletproof."

Compaq officials also announced a new Armada line, the Armada 1500, which will feature 120- and 133-MHz Pentium processors. Prices will start at $1,999.

Mark Vena, director of portable product marketing at Compaq, said the company will begin phasing out its high-end notebook line, the LTE 5000. It will then consolidate its laptop technology and products into one line, the Armada.

"It's a smart marketing ploy to go with one name," said Mike McGuire, an analyst at Dataquest in San Jose, Calif.

He said the company is redoubling its efforts to make a splash in the laptop market, after "taking their eyes off the mobile market last year ... They plan to try harder this year to hold on to their status as a top five notebook vendor."

GOOD-BYE LTE 5000S

Mike Radigan, program manager at Xerox Corp. in Rochester, N.Y., said he won't miss the LTE 5000 notebook line.

"We have had some problems with the LTE 5000s, but we would look at some new Compaq notebooks with new technology," Radigan said. He said his company has had difficulty getting repair parts and that users have complained about short battery life.

Compaq also announced a partnership with NetCentric Corp. in Cambridge, Mass., an Internet software developer, to develop a metering specification for Internet usage. The new technology will allow tracking of detailed usage information for network billing and management systems. The protocol will be available for developers by midyear. □

ARMADA 1500

- 120- or 133-MHz Pentium processor
- 11.3- or 12.1-in. color screen
- Integrated AC adapter, hard drive, diskette drive and 33.6K bit/sec. data/fax modem
- Pricing starts at $1,999

Netscape, Be team up to offer BeOS Web server

By Lisa Picarille

ATTEMPTING TO gain a foothold in the PowerPC Web server market, Netscape Communications Corp. next month is expected to announce a development partnership with upstart operating systems vendor Be, Inc., according to sources briefed on the deal.

Sources said Netscape and Menlo Park, Calif.-based Be are set to unveil a Netscape Enterprise Server for PowerPC-based systems that run BeOS, Be's operating system. The server will be unveiled at the Be Developer Conference in San Jose, Calif.

The new systems could be used for content creation and to serve up World Wide Web pages via the Internet or an intranet.

The Netscape Web server for BeOS is marketed as a departmental Web server for the pockets of Apple Computer, Inc.'s Mac OS-compatible machines that operate within large firms.

"We have a set of discussions ongoing with Be. We don't have an agreement yet, but I am expecting that we will work together with them," said Mike Homer, vice president of marketing at Netscape. Jean-Louis Gassee, Be's chairman and CEO, said there is "nothing I can comment on at this time."

For Netscape, which has a family of servers for Windows 95, Windows NT and Unix, a BeOS-based Web server gives them entry into the 25 million-user PowerPC market. An estimated 40% use the PowerPC for Web development.

Users of PowerPC Mac OS-based machines now have only a handful of Web server choices.

Many Macintosh users such as Peter House, webmaster at the Smithsonian Institution in Washington, said that although they are in a Macintosh environment, they run a Unix-based Web server. House uses a Silicon Graphics, Inc. Unix workstation as his Web server.

"Something like Netscape on BeOS wouldn't really get me excited because I'm satisfied with what I already have," he said.

The final version of BeOS, due in June, is expected to ship on most PowerPC-based systems. It will run on some Apple Power Macintoshes and most PowerPC Macintosh clones.

Observers said the deal with Mountain View, Calif.-based Netscape was a vote of confidence in Be, which was passed over by Apple in favor of Next Software, Inc.'s NextStep to help jump-start Apple's operating system development. □

Staff writer Justin Hibbard contributed to this story.

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Wintel PCs target speed, graphics

By April Jacobs

PARTNERS Microsoft Corp. and Intel Corp. last week raised the curtain on design guidelines for next year's PCs. They include a minimum 200-MHz Pentium processor and support for new technologies such as graphics-enabling MMX, quick turn-on capability and Universal Serial Bus (USB).

But the PC98 Design Guide is still in the planning stages, according to Redmond, Wash.-based Microsoft, which is still awaiting feedback from hardware makers such as Dell Computer Corp. in Round Rock, Texas, and Compaq Computer Corp. in Houston.

The only proposal that drew any real fire is the guideline's call to drop support for the Industry Standard Architecture (ISA) bus, which supports such peripherals as modems and network interface cards, in favor of Peripheral Component Interconnect (PCI).

Guidelines for a standard PC being proposed by Microsoft and Intel include the following:

- 200-MHz Pentium processor with MMX technology
- 32M bytes of RAM
- Support for at least one Universal Serial Bus port
- Hardware support for the OnNow initiative

Support for PCI would let Microsoft and Intel provide better tools for initiatives such as Plug and Play, which in turn would benefit users, the companies said.

"Intel and Microsoft are floating this thing out there, and they would like it to disappear, but the reality is that the installed base of ISA machines is huge and not something that you can make go away that quickly," said a spokesperson for one top-tier PC maker, who requested anonymity.

"The transition is going to be painful," said another, who also requested anonymity. He said users want to keep support for ISA because they don't want to have to buy new network interface cards and modems and fear that support for other bus technologies such as PCI and USB isn't mature enough to warrant such a transition.

End users also said they have doubts about the marketplace being ready for such a transition.

"It will probably be another four or five years before people are really ready to give up ISA," said Matthew Merrick, vice president of information systems at the Merrick Printing Co. in Louisville, Ky.

End users will want to make sure they have enough choices for newer technologies that support PCI before moving to it, he said.

STIFF GUIDELINES

Analysts said that although guidelines that call for 200-MHz processors are a bit much, companies may not be getting such a bad deal for the price. Most observers predicted that system pricing would be similar to what users now pay for a 133- or 166-MHz desktop.

The vast majority of large corporate users still run 16-bit operating systems such as Windows 3.1 and Windows 3.11, so there is no great need for 200-MHz speeds yet, said Chris LeTocq, an analyst at Dataquest in San Jose, Calif. □

Microsoft gives Windows 95 users cost-cutting tool

By April Jacobs

ABVERSING AN earlier stance, Microsoft Corp. officials said they will provide Windows 95 users with a Zero Administration for Windows tool kit designed to lower desktop administration costs.

The tool kit will be available within 90 days.

Windows users have been saying for months they would like to see the tools, which are supposed to automate tasks such as software distribution and upgrades while also providing more centralized administration.

ZERO HEROES

Zero Administration Kit for Windows will include the following:

- Central management software
- Limited lockdown features to prevent users from altering settings
- Automated software distribution and updates

"There are places where these tools can be of use to us, because they will allow us to spend less time doing repetitive tasks," said Frank Delargy, senior information systems manager at Waltham, Mass.-based Polaroid Corp.

His company is migrating about 5,000 users from Windows 3.1 to a mixture of Windows 95 and Windows NT-based desktops.

Even so, Microsoft officials several weeks ago said they planned to limit tool kit support to Memphis, the company's next version of Windows 95, and Windows NT 5.0.

Microsoft also committed to an add-on tool kit for Windows NT 4.0, which it said it will deliver within the next two months.

Although Microsoft officials said customer demand drove them to release a Windows 95 version of the tool kit, analysts said they suspect the company's decision was fueled by the fact that it will be late shipping Memphis and NT 5.0 — possibly as late as the first half of next year. That would mean access to the tool kit would have excluded much of the existing user base. □

Early version of Memphis adds key features, lacks others

REVIEW▶ *Windows 95's successor*

By Chris DeVoney

THE EARLY engineering release of Microsoft Corp.'s Memphis shows a positive direction for this Windows 95 successor, but for the moment, it lacks sufficient features to be a compelling corporate upgrade.

Among the key elements missing from this release, which was pushed into the waiting hands of several thousand developers last week at Microsoft's Windows Hardware Engineering Conference, is integration with Internet Explorer 4.0. That integration is intended to give Memphis users a browser-like feel when working with applications.

KEY FEATURES OF MEMPHIS

- Integrates with Internet Explorer (not in developer release)
- Includes Win32 Driver Model
- Has FAT32 and FAT32 converter
- Includes Advanced Configuration and Power Interface
- Supports multiple simultaneous displays
- Supports Universal Serial Bus, Firewire (IEEE 1394) and Digital Video Disc
- Has remote access enhancements

Memphis now incorporates features first found in the October OEM a release, such as Universal Serial Bus support and the 32-bit File Allocation Table (FAT32).

The prerelease also adds support for emerging hardware and industry initiatives, such as IEEE 1394 (Apple Computer, Inc.'s Firewire), Intel Corp.'s Accelerated Graphics Port and Digital Video Disc.

The long-awaited common 32-bit Windows device driver model for Windows 95, Memphis and Windows NT finally appears. That will let developers bring products to market faster and could help Windows NT lose its laggard reputation for using devices such as faxes and scanners.

Along with FAT32, which was designed to make efficient use of 2G-byte and larger disk drives, Memphis adds the converter missing from earlier releases. But the converter offers a "half-loaf," changing FAT16 partitions into FAT32 but not combining separate disk partitions, as seen when converting the two partitions on a 2.5G-byte drive.

To combine those partitions back into a single 2.5G-byte unit, you would either need to do manual repartition or use a third-party tool.

Memphis supports dual monitors using two video cards on one system. The two displays can combine to make a larger desktop, or programs can display different items on each monitor. For example, a Web designer can do Hypertext Markup Language coding on one display and see the page in a browser on the other display.

Remote access server improvements put Memphis on par with Windows NT 4.0. Our Memphis machine acted as dial-in host for clients that run Novell, Inc.'s IPX and SPX and Microsoft's NetBEUI protocol. Through multilink channel aggregation, which combines multiple communications links into a single higher-speed link, we used two 56K bit/sec. modems to connect to an NT 4.0 server.

The two connections combined into a single 66K bit/sec. upload and more than 100K bit/sec. download connection, offering near-Integrated Services Digital Network speeds over ordinary telephone lines.

The Point-to-Point Tunnel Protocol turns the Internet into a low-cost, secure virtual private network for Memphis and NT users. In our tests, we connected our Memphis machine through a local Internet service provider to our NT server, which was connected to PSInet in Herndon, Va., a national Internet provider.

Other features include the following:

- OnNow support, which lets idle desktops and servers slumber in power-saving modes and "wake" for use instantly, without a time-wasting cold boot.
- Automation of repetitive tasks by executing Visual Basic or JavaScript scripts.
- New troubleshooting utilities to collect more accurate information about the machine.
- The Internet System Update, which can download and install new or updated drivers or system files from an update site without user intervention. □

DeVoney is a writer and reviewer in Seattle. He can be reached at chrisd@cybercritic.com.

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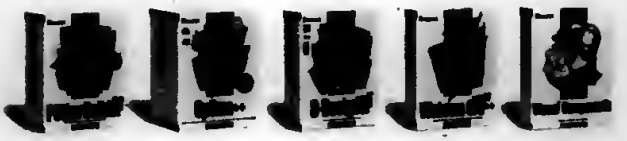

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Net monitoring tools gain real-time alerts

By Sharon Machlis

ANALYZING LOGS after a break-in won't protect your computer network any more than reviewing surveillance camera footage from time to time would adequately safeguard a bank.

So security firms are moving to the next generation of network monitoring tools: real-time detection and reaction.

"I think it's great that we're seeing more intelligence in these products," said Gary Lynch, a vice president for business continuation and data security at Prudential Insurance Company of America in Roseland, N.J. "Having no tools or 'historical' tools won't cut it anymore."

ON TAP

Internet Security Systems of Atlanta next month will begin beta-testing a Windows NT version of its RealSecure monitoring package, following a Unix version released in December. And Intrusion Detection, Inc. in New York last month announced the Kane Security Monitor for Windows NT that will look for things such as multiple log-on tries or attempts to access a top executive's PC.

The products join recently introduced offerings such as NetRanger from WheelGroup Corp. in San Antonio; WebStalker-Pro for Windows NT from Haystack Labs, Inc. in Austin, Texas; and OmniGuard/Intruder Alert from Axent Technologies, Inc. in Rockville, Md.

That class of tools guards against insider snooping and mischievous outsiders.

If suspicious activity is discovered, the system often takes defensive measures — for example, blocking electronic-mail floods or shutting off a connection trying to tap in to a password file — and notifies a security administrator by E-mail or pager.

Depending on the product, a monitor can sit at a firewall connection, on servers or on individual desktop computers. Somewhat like antivirus software, many monitors look for the signatures of well-known hacker attack patterns and advise users of new rules as the art of hacking advances.

"Its purpose and what the product does is great," said Roger Caissie, security analyst for information systems security at Toronto Dominion Bank, an early user of Axent software. But Caissie said he doesn't use it as much as he would like because his department hasn't found the time to set up all the rules and responses. He said he expects that a future version will have default settings to make it easier and faster to configure.

The ultimate idea is to save time and money, and to boost safety — although experts say the software augments well-trained security personnel and doesn't replace them.

Having a $5,000 software package do preliminary monitoring work makes more sense than using a $100,000-a-year security specialist, Lynch said. "I'd rather pay a person to do the follow-through," he said.

Most users are hesitant to discuss which monitoring tools they've implemented and how they work for fear of inadvertently issuing a challenge to hackers.

Without specifying the software used or the attack it stopped, Lynch said that "in one case, it did what it was designed to do. We are certainly making use of these tools." □

REAL-TIME NETWORK MONITORING TOOLS

Company	Product	Price
Axent Technologies www.axent.com	OmniGuard/ Intruder Alert	$1,995 (manager) $995 (server) $395 (workstation)
Haystack Labs www.haystack.com	WebStalker-Pro	$2,995 (Windows NT) $4,995 (Unix server)
Internet Security Systems www.iss.net	RealSecure	$5,000 (Unix firewall monitor)
Intrusion Detection www.intrusion.com	Kane Security Monitor	$695 (Windows NT)
Wheel Group www.wheelgroup.com	NetRanger	$16,000 (hardware and software)

Oracle's year 2000 tack

CONTINUED FROM COVER 1

bear the brunt of training and implementation costs.

All the offerings from Oracle competitors SAP AG and PeopleSoft, Inc. are year 2000-compliant. The Baan Co.'s latest packages, from Triton III to Baan IV, are century date-ready. A patch is available to bring earlier versions up to speed. End users who run software from those companies will be spared the cost and distractions of year 2000 fixes on their business process software.

Some year 2000 watchdogs predicted that vendors — particularly software vendors — would inevitably be forced to drop support for current applications to eliminate year 2000 problems.

"[Oracle's announcement] validates the trend we saw over a year ago that vendors were going to do the math and say, 'We can't afford to go back and fix all this old code, and more importantly from an economic standpoint, why should we?'" said Jim Jones, managing director of the Year 2000 Group of the Information Management Forum user group. "The big question is how will the users react?"

Users interviewed by *Computerworld* are taking the decision in stride so far.

But Oracle has yet to face the 4,500 users expected at this week's conference, who may have more to say on the subject.

"The decision was made after Oracle analyzed what it would take to patch all the noncompliant pieces," said Kevin McGuirk, director of applications and vertical markets at Redwood Shores, Calif.-based Oracle.

He said "the date issues were pervasive throughout the code" and that the amount of changes to the code would equal an upgrade. McGuirk said a cost analysis indicated that a single upgrade was cheaper for users and Oracle than adding multiple patches.

DO-IT-YOURSELF PATCHING

For users who might not be as easily convinced that migration is less painful, Oracle also will announce at the conference that its development tools are year 2000-certified for those who want to build patches themselves.

But support for the earlier versions still will end.

"What we are recommending to customers is that they look at upgrading no later than Jan. 1, 1999," McGuirk said. "No one, if smart, will leave this to December 1999. No one would want to put themselves in that kind of position."

Kenneth Plunk, director of information systems at Sulzer Orthopedics, Inc. in Austin, Texas, said he isn't surprised by the news. He even praised Oracle for keeping users posted.

"[Oracle] sent a very specific write-up to the user group community detailing which parts of the applications were not year 2000-compliant," Plunk said. "They are communicating the problems so I know about them before I run up against them."

Sulzer Orthopedics plans to move to Version 10.7.

Plunk said the point migration will be relatively simple compared with migrations by companies that must go to a new version. □

Upgrade-minded

A large portion of the sessions at the OAUG conference are dedicated to year 2000 migration issues to help users deal with Oracle's pending announcement.

"It can take a good-size company with lots of applications a year to update," said Melanie Bock, president of OAUG, the independent organization that is producing the conference.

"People may also start having trouble with the date before the year 2000 with planning and forecasting software," she said. "In some cases, Oracle is offering patches for those functions, but in others it won't. So users need to get the timing down to upgrade."

— Randy Weston

New offerings on view

Oracle will unveil an upgrade to its financial offerings and enhancements to its Web-enabled applications at the biannual OAUG conference this week. The upgrade to Oracle's financial software is part of the vendor's recently released Oracle Applications Version 10.7.

OAUG President Melanie Bock said although sessions about the Version 10.7 enhancements will take up much of the conference, users are anxious to hear about Oracle's Web applications. That is "one of the things we hope to hear a good update on," she said. Bock noted that Oracle announced plans in February to release a new version of its Web-enabled applications this month.

Specifically, she said, management and administration of the Oracle Web Applications is difficult, and they don't scale well in large enterprises. Oracle apparently is hearing the call. Among the planned announcements is the availability of Web Applications Version 2.0, which includes scalability enhancements for management and administration.

Version 2.0 also will include a new expense-report module. Web Expense will join existing modules of Web Customer, which lets a user's customer manage orders; Web Employee, which is used for managing personnel records; and Web Supplier, which lets a user's supplier manage inventory and other transactions via the Web.

As for its financial offering, Oracle plans to release new functions for financial planning, analysis, consolidation, expense management, billing and cash collection, and asset management.

— Randy Weston

E-commerce's garage-band days are over

By Mitch Wagner
ATLANTA

THE TRADITIONAL IMAGE of the electronic-commerce advocate within a company is of a maverick.

In that view, corporate World Wide Web sites are put up quickly by a small team of dedicated visionaries who work without the permission of upper managers. Often, upper managers don't even know about the project until the rewards start coming in.

But those days are over, said Paul King, a senior marketing specialist for electronic commerce at Federal Express Corp. in Memphis.

"It's becoming a serious business environment," King said. "We're seeing a waning of the anything-goes mentality. The razzle-dazzle has to be linked to business value."

GOALS AND PLANS

Speaking at the Internet Commerce Expo here last week, King said companies now need to treat Internet commerce as they would any other business venture. They need a clearly defined set of goals for how the Internet will bring them business value. They need a methodical plan for achieving those goals and for coordinating with the appropriate business units. And they need some reliable, detailed means of measuring business performance of the site.

"Skunk works is great for entry [to Internet commerce], but in the long term, it's not a solution," King said.

When L. L. Bean, Inc. in Freeport, Maine, went online, the company worked from a strict, 12-step plan for translating its business model into cyberspace, said Ruben Pinchanski, chief interactive architect and director of new-media development at Strategic Interactive in Boston, the consultants that designed L. L. Bean's Web site.

"The razzle-dazzle has to be linked to business value." – Paul King, FedEx

The retail company prizes customer service and brings that business value online by loading up its Web site with information about products and outdoor activities and mandating that customer electronic mail be responded to within 24 hours.

"The journey for L. L. Bean has been understanding the business model and understanding the process," Pinchanski said. "Bean is a very process-oriented company."

By reading customer E-mail and performing online surveys, L. L. Bean learned that its online customers are younger than its catalog customers and that many customers are outside the U.S., Pinchanski said. Japan made a strong showing, for example.

Some products, the company learned, sell better online than in catalogs. And L. L. Bean gave its products different reference numbers online from those in the catalog to track online sales separately.

Still, the spontaneous, maverick approach has its defenders.

William S. Finklestein, vice president and manager of the direct distribution group for Wells Fargo & Co. in San Francisco, said that for some businesses, the benefits of electronic commerce are clear, and traditional return-on-investment computation might not be necessary.

Wells Fargo found that its Internet channels to customers were less expensive by at least a factor of 10 compared with more traditional communications routes.

Moreover, the Internet is changing so fast that any formal electronic-commerce strategy is going to have to be torn up and rewritten quickly.

"Be nimble," Finklestein said. "That has to be your long-term strategy." □

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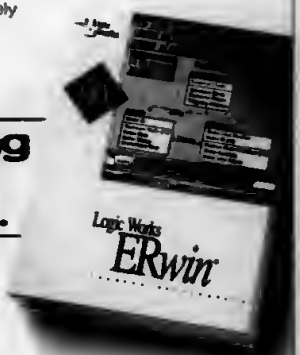

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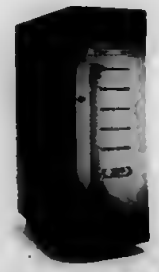

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NCs spell help desk relief

▸ *Simpler systems, server-based upgrades reduce IS burden*

By Kim Girard and April Jacobs

NETWORK COMPUTERS should relieve overworked help desks by giving users simpler systems they can't easily foul up and by moving software upgrades to the server.

That has been the case for Don Resh, senior vice president and chief information officer at Reston, Va.-based Retired Persons Services, Inc., which has about 1,000 network computers from HDS Network Systems, Inc. in King of Prussia, Pa.

Resh said he noticed there were significantly fewer calls to his help desk within a few weeks of installing the devices, called @Workstations.

"I attribute that to the fact that end users weren't making mistakes they typically make at first — like loading disk drives upside down or, 'I loaded my brother-in-law's golf game, and now my PC doesn't work.'" Resh said. "With [network computers], this doesn't happen. They don't have access."

Popular wisdom dictates that network computers will create less work for help desks because users have access to fewer computer applications and components on the desktop.

LIGHTEN UP

Three reasons why network computers may ease the help desk burden:

1. Focus is shifted from PC to server
2. Hardware and software are standardized
3. Software and operating system upgrades are done centrally

For example, users don't have a floppy drive and can't reconfigure their machines. The desktop computer is locked down and can be altered, in many cases, only at the server level.

Paul Dunn, manager of technical services at Les Schwab Tire Centers, Inc. in Prineville, Ore., said he expects some help desk relief if the company installs network computers.

Dunn, who is considering a switch to thin clients, said he believes network computers could help Les Schwab avoid adding to a seven-person help desk staff that now supports 2,000 remote users. "The help desk will have less administrative work to do and fewer machine problems," he said.

Tim Monteith, vice president of information systems at Domino's Pizza, Inc. in Ann Arbor, Mich., complained that software development for network computers lags.

RELIEF FROM UPGRADES

But he said the biggest benefit of installing network computers would be the reduction of labor-intensive software upgrades required for the company's 1,000 PCs.

Karen Boucher, an analyst at Standish Group International, Inc. in Dennis, Mass., questioned how much network computers will reduce technical-support headaches. Those problems will simply be shifted to employees in charge of the server, she said.

"Maybe [network computers] will reduce [help desk employee] foot traffic," she said. "But even then, you'll have a machine at your desk, and things will go wrong with it. People are still going to need help. I don't see where the workload will diminish." ◻

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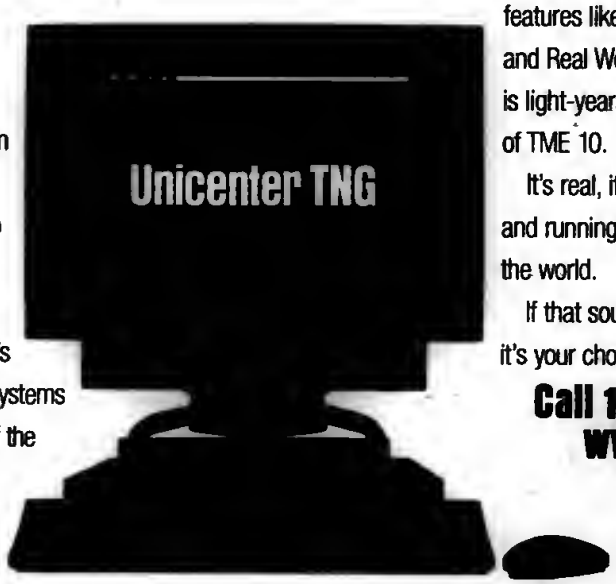

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Many year 2000 projects still at starting gate

By Robert L. Scheier

READY, SET, WAIT?

That's how many Fortune 500 companies are approaching year 2000 problems, according to a survey of 112 corporate information technology directors.

The survey, conducted for year 2000 service provider Cap Gemini America and released earlier this month, showed that 85% of the respondents' companies had created a conversion task force or project team. But with fewer than 1,000 days to the year 2000, only 18% had a detailed conversion plan in place. And just four out of every 10 respondents had assessed all their information systems or how year 2000 bugs could hurt their business.

Given the lack of time and money for the project, Gartner Group, Inc. research director Bruce Hall said many companies "need to plan not to finish" all their year 2000 work and start fixing their most critical systems without waiting to finish a detailed analysis of the problem.

Speaking at the presentation of the survey results, Hall said the question corporations should ask is, "What's the 20% of our business processes that really represent 80% of our revenue?" The next step is to identify which applications must be fixed to protect that revenue stream, he said.

Some large organizations, such as the Internal Revenue Service, already are taking that approach. "We are focusing on our mission-critical systems," said Julia McCreary, a technical adviser to the year 2000 project at the IRS in Washington, speaking at a year 2000 conference last month. For less critical systems, "We'll have to do a few ugly kludges" that will need to be permanently repaired later, she said. But McCreary said she believes the IRS will have to do fewer temporary repairs than most other organizations.

WHERE'S THE MONEY?

Hall also said he sees "a very, very high degree of frustration" among year 2000 project teams that can't get the executive support and money needed for conversion work.

Too many IS managers still believe "you can walk into [the executive suite] with your lines-of-code estimate and ... stir people into action," Hall said. IS managers instead should offer management detailed scenarios that demonstrate how the business could be hurt by year 2000 failures, he said.

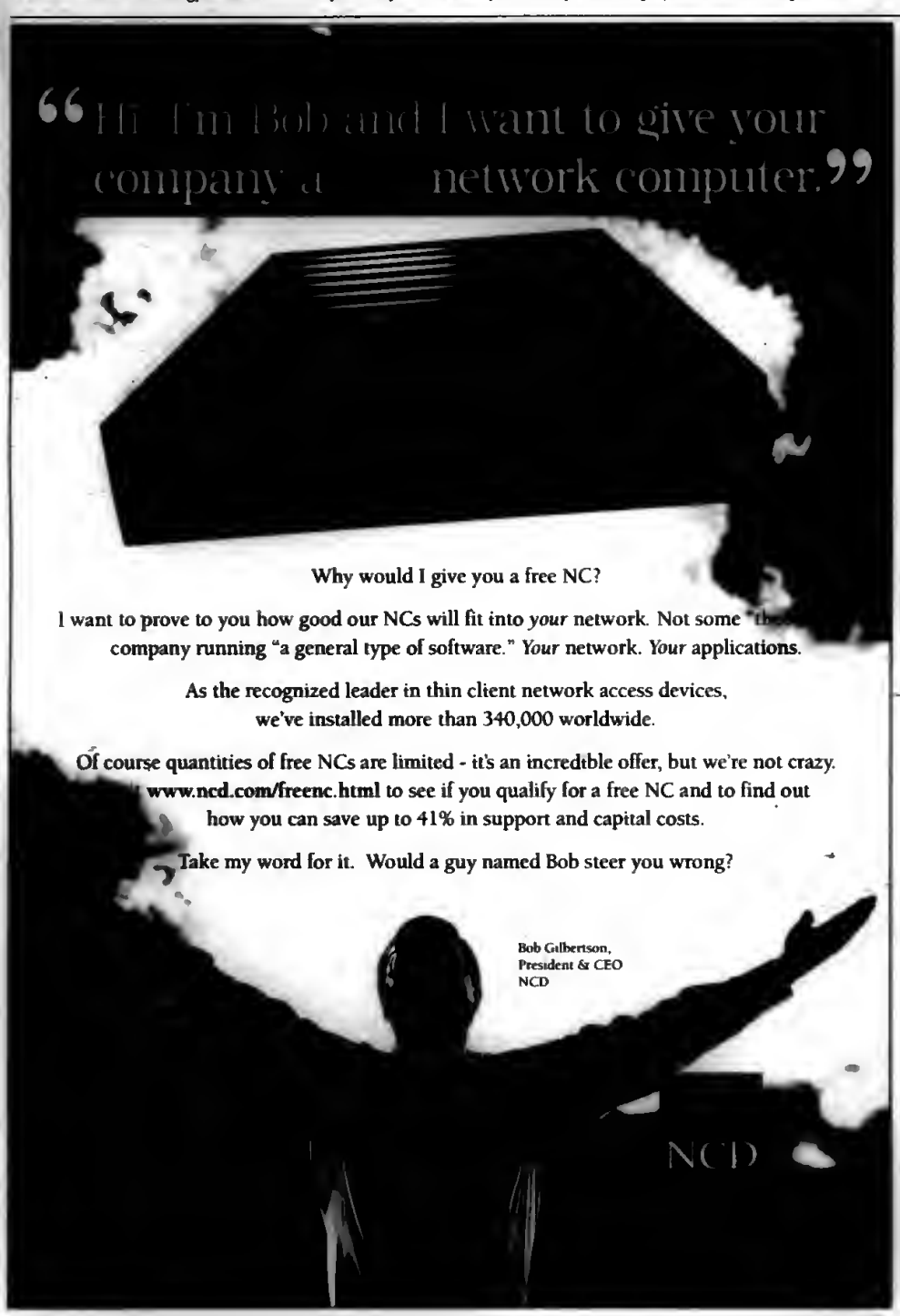
"You have to identify the war stories, the horror items that are going to grip your executives," McCreary told conference attendees. A "horror item" at the IRS, for example, would be a year 2000 error that indicated a couple didn't properly pay their taxes, resulting in a letter from the IRS saying, "Sorry, we took your house 15 days ago."

The poll also showed that most firms prefer to bring in an outside vendor to do the conversion work, rather than outsource the entire problem. Eighty-four percent of those surveyed said it would be easier for them to learn a vendor's conversion processes and work with them, rather than expect a vendor to learn about their systems in order to fix them.

"We know our code better than anyone else, so we're going to be doing our own remediation," said Lynn Sandow, an assistant manager in the internal audit department at Salomon Brothers, Inc. in New York. Sandow also spoke at the year 2000 conference.

As time goes on, the poll showed, year 2000 work will eat up more IS resources. Today, almost all those polled said date-conversion work takes up 20% or less of their information technology budget. But three-fourths expect that to increase to between 20% and 40% of their IT budget in the next three years.

The complete poll results are posted on Cap Gemini's World Wide Web site at www.capgem.com\transrv1. □



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Beefed-up support saves users money

▸ Microsoft plans more expansion of support

By Laura DiDio

MICROSOFT HAS SPENT the past three years deploying a massive, multipronged effort to replenish its once-anemic technical support.

The Redmond, Wash., company knew the initiatives were necessary because "roughly 60,000 people contact Microsoft's telephone support centers and Web site each day. That's 20 million a year," said Mark Perry, general manager at Microsoft's Enterprise Technical Support group.

Microsoft's World Wide Web site gets 66% of the hits (35,000 to 40,000 inquiries daily), while phone support typically logs 20,000 daily calls. About 40% of the phone incidents are resolved during the initial call; 60% require follow-up.

In the past three years, Microsoft has re-engineered its help offerings. It now delivers two levels of support: Basic Service and Premier Service Advantage.

WORTH THE PRICE

Basic Service typically costs users about $10,000 annually. Premier Service Advantage starts at $45,000 and can cost much more than $100,000, depending on options.

For that price, Microsoft's 1,300 Premier Service Advantage customers get a designated personal account manager and direct access to Microsoft support around the clock.

Although Premier Service is expensive, Mike Sidell, senior manager of business systems in the Electronic Brokerage Division at Charles Schwab & Co. in San Francisco, said it is worth it. "Paying $150 per incident call isn't a lot when you consider how many millions we'd lose if our networks crashed for even 30 minutes," he said.

New support revamp plans call for adding 300 to 350 new technicians to the current staff of 1,700 technical support engineers and account representatives worldwide.

Microsoft's support staff will grow by 20% annually, and the company also will expand its training to cope with the rapid rise in support queries since last August (see chart).

Microsoft also is helping users help themselves troubleshoot problems by broadening its online Knowledge Base, a database of all known problems and bugs in Windows operating systems and software. □

INQUIRING MINDS WANT TO KNOW

Microsoft will add 300 to 350 technicians within the year to accommodate the growing demand for support

Type of support	August 1996 (Queries per day)	April 1997 (Queries per day)
Web site support	9,500	40,000
Windows NT Workstation support	500	2,000
Windows NT Server Web site self-help resources	70	2,000
Windows 95 (via the Web)	1,500	3,500
Microsoft Exchange (via the Web)	200	400
Microsoft's online KnowledgeBase	7,500	18,000
Phone calls to Microsoft technicians	20,000	20,000

Microsoft plays catch-up with support

CONTINUED FROM COVER 1

"We had a problem between Microsoft Fax and Microsoft Exchange. ... The Knowledge Base got the answer in 10 minutes."
– Randy Dugger, Sequus Pharmaceuticals

port. That wasn't a concept that Redmond understood. They thought it could all be done by third parties," said Britt Mayo, director of information technologies at Pennzoil Co. in Houston, one of 12 select businesses on Microsoft's Premier Support User Advisory Council.

Today, vast improvements to Microsoft's technical support have yielded tangible cost savings, Mayo said. Four years ago, when Pennzoil's support was do-it-yourself, it took 15 minutes per desktop to fix a typical glitch on the company's 4,000 desktops — a total cost of about $50,000 per occurrence.

"Conservatively, Microsoft's Premier service saves us $300,000 annually and provides our business with increased uptime," Mayo said.

Howard Marks, chief scientist at Networks Are Our Lives, a Sherman, Conn., consulting firm, said Microsoft's support has gone from "a black hole that usually consisted of Redmond denying there was a problem with their software to [today] being close to best of breed."

Jim Snively, a systems consultant at Sun Co. in Philadelphia, said Microsoft's support is now better than most vendors. "Microsoft is top-notch in terms of responsiveness, and its technical breadth of capability is very good," he said.

Users can buy two classes of service: Basic support for about $10,000 per year, and Premier Advantage support, which begins at $45,000 per year and provides customers with a personal account representative and direct support from Microsoft. But Microsoft's technical support isn't perfect.

Gripes elicited from the poll centered on four issues: the $150 to $195 cost for each call to Microsoft's technical support centers; inexperienced first-level technicians who sometimes take days, or even weeks, to resolve a problem; the outsourcing of Basic-class technical support customers to third-party business partners; and waits of 45 minutes or longer to speak with engineers.

Premier support customer Rick Shope, manager of PC technology and planning at NationsBank Corp. in Chicago, offered mixed reviews. "Overall, we're happy," he said. "In 1996, we logged 120-plus incident calls, and 80% were solved within 48 hours." The downside:

Microsoft took too long to solve the bank's more serious problems. "Microsoft took six weeks to get us a hot fix for a Windows NT file system problem," he said. But compared with other vendors, Shope said, Microsoft earns an "A for effort."

Microsoft's online Knowledge Base, a database of all known problems and bugs in Windows operating systems and software, drew raves from users such as Randy Dugger, director of information systems at Sequus Pharmaceuticals, Inc. in Menlo Park, Calif. "We had a problem between Microsoft Fax and Microsoft Exchange. It would have taken us three hours to track it down manually. The Knowledge Base got the answer in 10 minutes," Dugger said.

Tom Richer, director of enterprise messaging services at Integrated Office Solutions, Inc., a New York consultancy, said Microsoft's technical support is "comprehensive but expensive." Richer said he is frustrated by having to spend time answering "basic questions." He said he usually has to get his incident call escalated to get the help he needs.

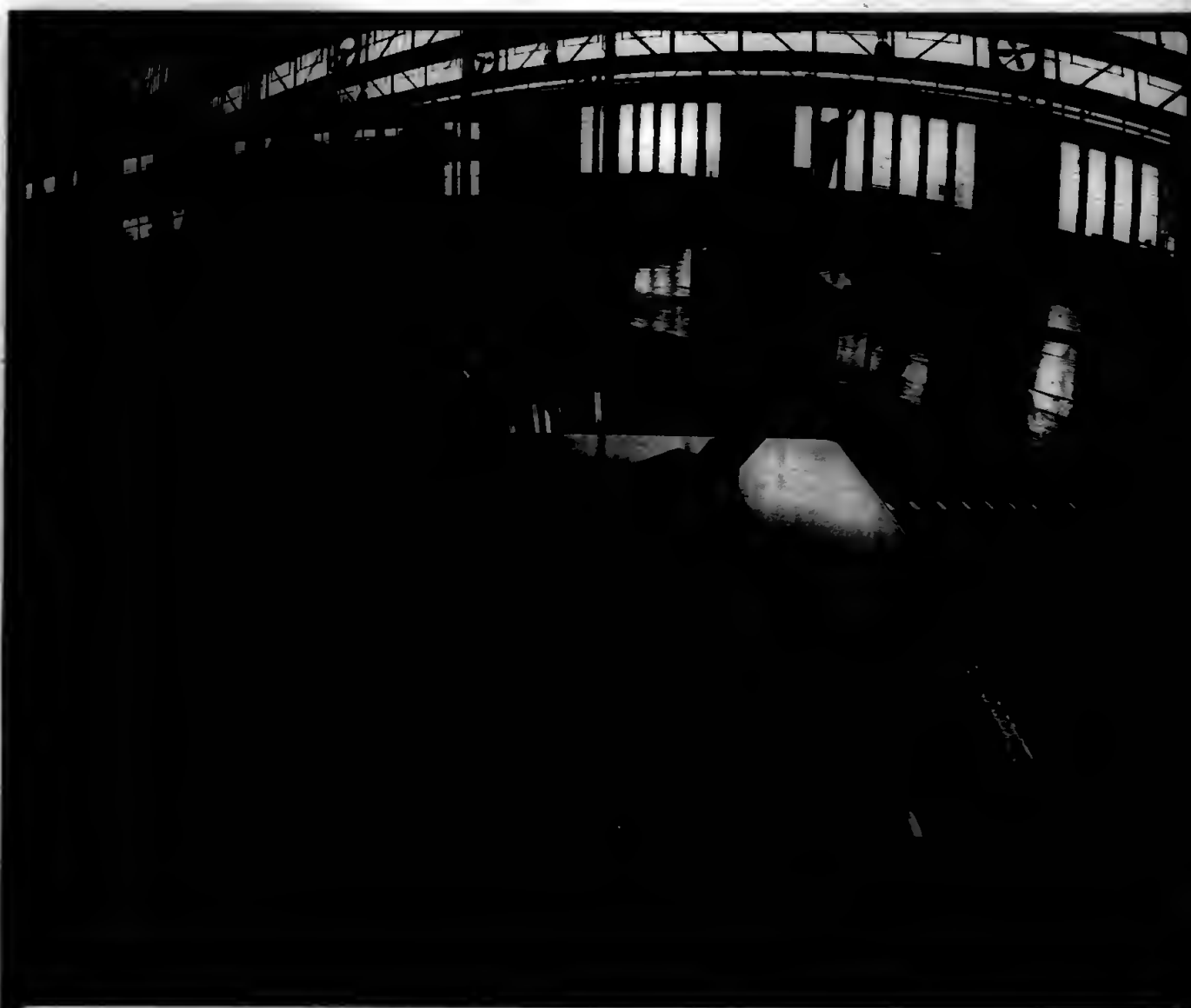
"In 1996, we logged 120-plus incident calls, and 80% were solved within 48 hours."
– Rick Shope, NationsBank

Jeff Dazell, a LAN administrator for corporate support at Dana Corp. in Toledo, Ohio, said he pays $125,000 per year for Microsoft's Premier enterprise support. "Next year, we may downgrade to Basic support for $10,000 a year. We haven't gotten six figures' worth of value. The only thing Microsoft's done for us that we couldn't do ourselves is put out patches," he said.

Mark Perry, general manager at Microsoft's Enterprise Technical Support group, said Microsoft surveys 400 customers each month, querying them on their satisfaction with the level of technical support. "Customer satisfaction among Premier enterprise users is currently at 86%, including problem resolution and personal technical account managers," Perry said. Only 2% of Microsoft's Premier Advantage customers said they are dissatisfied, he said.

Perry also said Microsoft's support packages are comparable to and in some cases substantially less expensive than similar offerings from other vendors. "Some of them start with a base tag of $100,000 for premier support," he said. He acknowledged that Microsoft has raised support prices about 8% in the last two years. □

Senior editor Barb Cole-Gomolski contributed to this report.



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Computer Industry

Briefs

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Acer PC growth static

The Acer Group in Taiwan last week reported a 54% slide in annual profits as revenue growth ground almost to a halt. Acer said slumping dynamic RAM prices and the soft U.S. retail market for PCs were the main culprits. Revenue grew by 1.16% last year to $5.89 billion, compared with $5.83 billion in 1995. Net profits dropped 54% from $419 million in 1995 to $188 million for the year ended Dec. 31.

Rational to buy rival

Rational Software Corp., expanding its expertise in offering software programming products, last week said it will buy rival Pure Atria Corp. in a stock deal initially valued at about $839 million. But both companies' stocks plunged after Pure Atria said its first-quarter earnings would be far less than Wall Street expected because of the company's difficulty managing its own recent acquisitions. Rational could have the same difficulties, analysts said.

Bay to buy Isotro

Router and switch maker Bay Networks, Inc. in Santa Clara, Calif., last week said it plans to acquire Isotro Network Management, Inc. in Ottawa. Isotro's NetID servers and database let systems managers automatically manage and configure domain name servers and Dynamic Host Configuration Protocol.

Online distribution still up for grabs

▸ *Stakes high as software sales go to Web*

By Lisa Picarille

COMPANIES INVOLVED in traditional sales and distribution of software are jockeying for a slice of the potentially lucrative electronic software distribution pie.

Software developers, distributors and resellers are eyeing the online sale and delivery of software as a huge opportunity. Online services also are trying to get into the act.

Among the major market research firms, predictions about the market's potential vary greatly. Most estimates don't break out electronic distribution. Instead, they lump it with online commerce, which can include anything from selling flowers to banking via the Internet.

That hasn't stopped developers and independent software vendors that see electronic distribution as a way to cut the hefty cost of shipping and handling software and reach a broader range of users.

According to a survey by "Softletter," an industry newsletter in Watertown, Mass., the majority of software developers expect that in the next two to five years, 33% of their revenue will be generated from online software sales.

Today, most independent software vendors provide bug fixes, updates and demonstration versions of software via World Wide Web sites.

Distributors, which controlled more than 88% of the $73 billion market for PC hardware and software last year, are redefining their role because the Web makes it easy for vendors to sell directly to users and cut distributors out of the process.

Traditional distributors such as Tech Data Corp. in Clearwater, Fla., Merisel, Inc. in El Segundo, Calif., and Intelligent Electronics, Inc. in Exton, Pa., are outsourcing services to companies such as CyberSource Corp. in Menlo Park, Calif., and LitleNet LLC in Lowell, Mass., to provide back-end distribution services such as payment processing and maintaining Web and electronic software distribution servers.

The other players in the software distribution channel don't want to be left behind, either. They are attempting to leverage their access to customers by setting up online software stores. Users can purchase software online from a variety of sources, including CyberSource's Software.net, The Microsoft Network and CompuServe.

Although a wide range of industry participants are pushing electronic software distribution, hurdles need to be cleared before corporate America fully embraces it.

Users said inadequate bandwidth for downloading large business productivity applications, fear of credit-card fraud, payment security and licensing issues are holding them back. But most users said they eagerly anticipate being able to buy and download software online. □

Forms hosting electronic software distribution

Player	Role
Software developer	•Sets channel terms and prices •Provides electronic versions of marketing material •Sets return, rebate and upgrade policies
Distributor	•Sets reseller prices and credit terms •Reports purchase activity to developer for billing •Reports transactions to clearinghouse
Reseller	•Manages communications and credit with customers •Determines secure product delivery •Sets customer prices
Clearinghouse	•Records and reports transactions •Fights fraud •Provides security

Shiva stumbles as remote market shifts

By Mindy Blodgett

SHIVA CORP.'s fortunes have tumbled in the past few months, and industry observers said the Bedford, Mass., company faces tough challenges in its attempt to recover.

"The challenge Shiva faces in going forward is reacting to changes in the remote access market, which is trending toward using the Internet in remote access and away from corporations running their own remote access systems," said Brendan Hannigan, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Cynthia M. Deysher, Shiva's chief financial officer and senior vice president, resigned last month. CEO Frank Ingari that same day told Wall Street that the company wouldn't meet its revenue projections.

Specific numbers won't be available until this week, but Ingari recently said Shiva wouldn't meet first-quarter revenue projections and would incur a "substantial operating loss." The company made more than $200 million in revenue last year.

Ingari said declining sales of its LanRover remote access products was one of the reasons for the expected shortfall. He said Shiva reduced product shipments in an effort to lower channel inventories.

After Ingari's announcement, the company's stock price dropped from $12 per share to $8 per share. The stock price climbed back up last week to more than $10 per share. But Shiva stock was trading at more than $80 per share last July, shortly after the company went public.

Declining LanRover sales have hurl Shiva's bottom line.
– CEO Frank Ingari

"Shiva wasn't well-prepared for the shift in the remote access market," said Virginia Brooks, an analyst at Aberdeen Group, Inc. in Boston. "The remote access demands of clients grew. Shiva got in when companies had one or two telecommuters, for instance. When there was suddenly a big volume of telecommuters, [Shiva] didn't ramp up their products in time."

Shiva also was hampered by the market splash made by 56K bit/sec. modem technology, which promises to speed up connections to the Internet. Shiva's products are still tied to 33.6K bit/sec. modem technology, although Ingari said the company plans to migrate quickly to 56K bit/sec.

Ingari acknowledged the challenges Shiva faces, but last week, he said the company is optimistic about its future. He said Shiva will shift its focus from networking to concentrating on providing technology that will let carriers switch data traffic from overwhelmed voice telephone lines. □

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3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems

(a) Solaris (b) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Dev/Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Intranet Products ☐ Yes ☐ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)

(a) ☐ Internet software
(b) ☐ Internet browsers
(c) ☐ Web authoring/development tools

5. Do you use the Internet?

☐ Yes ☐ No

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OPINION

Java blend One of the most interesting rumors afloat at the JavaOne conference in

San Francisco recently was that Microsoft is fiercely recruiting Java programmers from within IBM and Sun.

Frankly, I'd be a lot more surprised if Microsoft wasn't trying to boost its Java resources. It obviously has fixed its steady gaze on this hot Internet technology and the tools that enable it. What the Java forces should do in return is stifle the urge to start an anti-Microsoft religious war over whose Java is better.

Consider this: Microsoft just released a test version of its new virtual machine that runs ActiveX and JavaBeans components together. It is also rolling out a cross-platform library of graphics and user-interface components, and the company promises to deliver this year enterprise libraries that will provide Java developers with distributed computing services. And for the record, Sun officials acknowledge that Microsoft has been just as diligent as the other Java licensees about passing the necessary test suites for compliance.

From a customer or developer point of view, that's all wonderful news. For months now, readers have wistfully been telling us how they want Microsoft to rewrite its Office software suite in Java. Such an undertaking would naturally require scores of Java experts on staff in Redmond.

At JavaOne, several journalists pressed Sun CEO Scott McNealy on why he continues to hurl barbs at Bill Gates and his Java plans. Flashing his trademark grin, McNealy joked that it was mainly "jealousy, envy and immaturity" on his part. Everybody laughed.

Yet analysts and users alike are worrying that anti-Microsoft sentiment, a deeply ingrained part of Sun's culture, portends a pointless religious war over Java. What they realize — and what the Java forces should hasten to acknowledge — is that if Java is to be the rising Internet tide lifting all boats, it should be able to float a big battleship like Microsoft, too.

Maryfran Johnson, *Executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

'Stay-on' contracts are a sign that training is likely

I was amazed at executive editor Maryfran Johnson's thoughts on "stay-on" contracts for employees ["Nobody move," CW, March 10]. I'm an employee who has benefited tremendously from employer-paid training. I'm not sure about the world of publishing, but there really are employees in my industry (banking) who will accept thousands of dollars in training and then move on to a higher bidder.

If it's company policy to require a stay-on contract of everyone, I'll sign it. I see it as increased opportunity. With some assurance that the employee will stay, the employers will be more likely to offer the training. Without that assurance, in the current business climate, training could get scarce.

Ed Cones
Little Rock, Ark.
econes@aristotle.net

Context is everything

In the article "IS reins in runaway projects" [CW, Feb. 24], a statistic attributed to The Standish Group claimed that 45% of software functions are never used.

Why? Is it because designers are gold-plating software? Is it because users ask for everything they can think of and the designers agree? Or is it because software project developments take so long that by the time the software is delivered, it is useless?

Without context, the stats you keep publishing are only interesting as bar (and conference circuit) talk.

Robert N. Charette
Itabhi Corp.
Fairfax, Va.

MDs need better systems

In "Techno-phobic MDs refuse to say 'Ah!'" [CW, Feb. 24], you missed the point. The lack of adoption of computer methodologies for the practice of medicine is due to the poor systems available. Doctors are technophobic because the computer programs don't help them do their jobs.

If systems were developed that could be called computer-assisted patient care systems, doctors would hasten to use them. As a computer user for 35 years and a doctor with a thoroughly automated practice, I can assure you that this is possible. Technophobia is a common excuse offered for clinically unacceptable systems written by people who have never had to make a clinical management decision for a sick patient and make sure that it gets done. Don't blame the doctors for poor design. If you build it, they will come.

William T. Blessum
Clovis, N.M.
wtb@3leflies.com

Tell the truth, now

In Frank Hayes' March 3 column ["Is Java compatibility impossible?"], Microsoft spokesperson Charles Fitzgerald says it's impossible to deliver binary compatibility. Probably true, but he was being asked about Java, not binaries.

Java is interpreted, which makes it very possible to have Java compatibility across platforms. Fitzgerald should take political training to better master the issuance of "truth-challenged" statements.

Jim Murray
Maumee, Ohio
jmurray@expost2.lof.com

Oops! There is a 2/29/2000

I just received the April 7 *Computerworld* and read with horror a letter titled "A new twist on year 2000."

Feb. 29, 2000, will indeed come to pass.

What makes it worse is the large green box proclaiming "There will be no Feb. 29, 2000." The letter writer cites the *Encyclopaedia Brittanica* as his source, stating that 2000 is not a leap year because it is evenly divisible by 400. In fact, years divisible by 100 are not leap years unless they are divisible by 400. So, 1900 was not a leap year but 2000 is a leap year.

There seems to be widespread confusion about this aspect of year 2000. I don't know if the *Brittanica* is incorrect or if the writer of the letter misinterpreted the information.

John Figura
Apertus Technologies, Inc.
Eden Prairie, Minn.

Editor's Note: Mr. Figura is indeed correct, and Computerworld regrets the error in last week's issue. Thanks to all our alert readers for pointing it out.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Sobering thoughts on cybermalls

Richard A. Feinberg

Some futurists have predicted that cybermalls and online shopping will bring the demise of brick-and-mortar malls and retail outlets. But they're wrong. Americans love to shop too much for that to happen.

Retail stores aren't doomed. Americans still love to shop 'til they drop.

Of course, scaring the retail industry is nothing new. When the home shopping networks first appeared on television, experts said consumers eventually would do all their shopping at home by phone. These experts believed that convenience and immediacy were all that mattered.

What these purveyors of doom fail to realize is that a tremendous number of individuals truly enjoy the shopping experience. Shopping, after all, is a social activity. People like to be around others who have common interests and feel a part of the community. Firsthand shopping offers a tactile experience, too. People love to see, feel, smell and try out merchandise before they buy.

It's true that TV shopping channels and Internet shopping have taken a bite out of traditional retail outlets' profits. But the bite hardly draws blood. Forecasters say retail sales on the Internet will grow from $500 million last year to about $7 billion in 2000. Those figures sound impressive until you compare them with the $2.3 trillion in retail sales and $70 billion in catalog sales last year.

That isn't to say that doing business on the World Wide Web is a bad idea. The retail industry actually stands to gain. The Internet will be a profitable outlet for a few types of merchandise. Candy, coffee and flowers appear to be selling well online, for example. These types of products appeal to customers 3,000 miles away from your shop, and the Internet is a great way to reach them.

Plus, the Internet offers 24-hour access to your products and services. Smart retailers are tapping in to the weekend and after-hours needs of customers.

Homework is the key to success. Retailers need to take a close look at their customers and services before going online — and consider the downsides. For example, by encouraging local customers to shop on your Web site, you may be discouraging them from visiting your store. That isn't good, because a large percentage of retail sales are "impulse" buys.

Keep in mind that Web shopping is nothing more than an electronic form of catalog shopping, and the "returns" will kill you. Merchandise returned by consumers is a tremendous headache in an electronic medium, just as it is for regular catalog sales.

Retailers also should beware of Internet opportunists who charge thousands of dollars for spots in virtual malls. The National Retail Federation in Washington will help you set up a Web page for just $199.

Be sure to research the best links to connect to your Web site, too. For instance, you might want to purchase a link to a virtual mall or a link from a universal floral delivery site. The best way to discover these opportunities is to spend some time "window shopping" on the Web yourself.

But don't be fooled into thinking you're going to get rich selling on the Internet. You may be able to pick up some extra business online, but one fact will never change: People love to shop in stores. It's as American as baseball and apple pie — and to get those, it's still quicker to jump in the car. □

Feinberg is director of the Retail Institute at Purdue University in West Lafayette, Ind., and head of the Department of Consumer Science and Retailing. His Internet address is xdjt@purdue.edu.

What ever happened to Microsoft?

John Gantz

Tony Picardi, head of software research at International Data Corp., recently said that even a bearish forecast of Microsoft's share of the world software market would yield an increase of 1% to 2% and annual revenue of $30 billion by 2001. Wow.

I suspect that Picardi will be right. Still, it's fun to wonder what a really bearish scenario might look like . . .

REDMOND, WASH., APRIL 2002

THE CONTINUING EXODUS of top software designers and executives from Microsoft Corp. for smaller competitors has pundits asking, "What ever happened to Microsoft?"

The company seemed indomitable a few years ago. Its mastery of the basic economics of the software industry — high barriers to entry for vendors and high switching costs for customers — was unmatched.

The company had an ironclad lock on desktop real estate with its Windows operating system and Office 95 applications and seemed well on its way to increasing its lock on the enterprise server market.

In hindsight, the first real sign of trouble might have been the release of Office 97, which users had little incentive to buy because they were still digesting the upgrade to Windows 95.

Although Microsoft was successful in getting hardware manufacturers to bundle the suite with systems, the company sold fewer units of Office 97 than Office 95. Perhaps it was the naming convention. Users saw Office 97 as a whole new product and not a simple upgrade.

Microsoft could have survived this, analysts said, except for the Exchange/Windows NT debacle of 1997 and 1998. Microsoft was poised for success in the electronic-mail and groupware markets when the problems with NT directory synchronization surfaced, and the release of NT 5.0 was delayed for more than a year.

Exchange networks simply couldn't scale up. Without NT-based Lightweight Directory Access Protocol support, they couldn't interface easily with other electronic-mail and groupware systems. Exchange ran only on NT. This was all the daylight that IBM/Lotus and a reenergized Novell needed. IBM/Lotus marched through corporate accounts like Sherman through Georgia, aided by the fact that Notes Server ran on multiple platforms. Novell scooped up low-hanging fruit in small business and the government.

Users who were once willing to bet their companies on Windows NT and Exchange welched on their bets, and Microsoft was locked out of the corporate heartland. For the first time, Microsoft's tried-and-true technique for establishing its proprietary solutions as de facto standards failed. The Windows NT stall also slowed sales of Microsoft's SQL and Internet Information Server products, which were linked tightly with NT.

A whimsical look at the fall of the Redmond empire in 2002.

Other analysts contend that the merger of America Online and CompuServe, which did such a number on The Microsoft Network, was the tiny crack that expanded into an ever-widening seam in Microsoft's financial picture. After the company's stock price-to-earnings ratio dropped 50% in early 1999, it didn't go back up.

That devalued the stock options for the army of new employees Microsoft hired in the late 1990s. Many of those employees seek greener pastures today.

But it must be remembered that even in its heyday, Microsoft never had the kind of monopoly market share IBM once had. And look what happened to IBM. It fell from grace — and fell hard — yet came back in less than a decade. Perhaps Microsoft will, too. □

Gantz is a senior vice president at International Data Corp. in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

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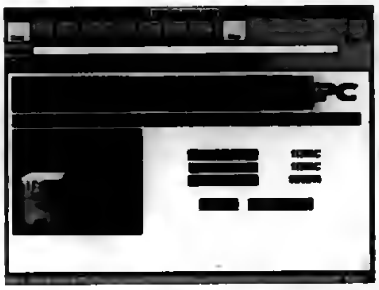

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*source: InfoWorld 1996

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COMMENTARY

A new challenge for Compaq

DAVID MOSCHELLA

ON THE SURFACE, things could hardly look better for Compaq. It continues to be the world's largest PC manufacturer. It sells far more servers than anyone. With 1996 sales of $18 billion, it's now the fifth-largest computer company.

Yet amid all this prosperity, a debate is raging. Faced with surging competition from vendors using a direct sales model, Compaq is about to modify its traditional dealer-centric approach. It's the company's biggest challenge since 1992, when it shed its premium price strategy and began its push for global market share leadership.

Although Compaq is still growing rapidly, Dell Computer, Gateway 2000 and Micron Technology are growing even faster. More worrisome for Compaq, the success of the direct sales model hasn't been limited to price-conscious individuals and small businesses. *Computerworld* research shows that this approach has also earned widespread acceptance at midsize and large enterprises.

By last summer, both Dell and Gateway had passed IBM in the U.S. corporate desktop market and made substantial gains against Compaq. By the end of the year, Dell had nearly caught Compaq in laptops, with Gateway also coming on strong. The direct sales model has clearly enabled lower prices, faster product availability and simpler customization.

If anything, this trend will strengthen. The direct model's ability to provide "mass customization" is well-suited to selling computer hardware. Few other businesses have our industry's combination of rapidly changing products, wide-ranging customer options and complex installation and compatibility issues.

Also, the Internet is steadily expanding the sales, marketing and service potential of the direct approach. Just take a look at the aggressive sales-oriented Web sites of the three main direct vendors and compare them to the online brochureware of Compaq, Hewlett-Packard or IBM.

Mass customization poses tough challenges for an aggressive, dealer-oriented company such as Compaq. Over time, it will need to build a first-rate sales and service operation to fulfill its Fortune 1,000 server ambitions. But it will also need to adopt the direct approach to keep up with changing technologies and compete for price-sensitive buyers. Understandably, the company's traditional dealers are worried about being squeezed.

The big challenge for Compaq is to avoid alienating its resellers at the same time it tries to transform them. The business of stocking equipment, placing orders and delivering configured systems will shrink. But the need for local marketing, service and expertise can only increase. Indeed, while Compaq struggles with how to go more direct, its direct competitors are wrestling with how to beef up their service. Over time, the two approaches will converge.

In 1992, Compaq stunned the PC industry with the speed and precision of its transformation. But those changes took place largely within its own walls. This time, its partners and customers will be directly affected. The stakes are just as high, but during the next 12 to 24 months, the risks, uncertainties and complexities will prove more daunting. Customers should proceed with caution. □

Moschella is senior vice president of research at Computerworld, Inc. and author of Waves of Power, Dynamics of Global Technology Leadership *(Amacom). His address is david_moschella@cw.com.*

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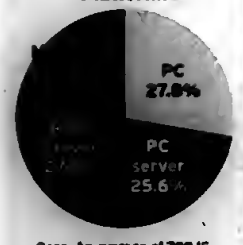
Servers & PCs

Briefs

[redacted]

What percentage of new application code is being written, developed and/or acquired by your firm?

Platform:



Base: An average of 700 IS managers surveyed

Source: Gartner Group, Inc., Stamford, Conn.

Laptop innovations are airborne

▸ *Airlines put in-flight power sources in seats*

By Mindy Blodgett

AS MORE workers go mobile, they are hitting two stumbling blocks to productivity: the difficulties of in-flight work and the short battery life of laptop computers.

To address the growing army of mobile workers and attract corporate business, airlines have announced innovations such as in-seat power ports for notebooks and in-flight phones.

But the innovation users say they want most is increased battery life.

"Having a good power source at the seat would take away the need to lug around so many batteries," said Bob Womack, director of computer services at Hale and Dorr, a Boston-based law firm. "But that said, we are still anxious to see better battery life."

"I see battery advancements coming in the next two years or so," said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H. "But it can't come fast enough for users. And the laptop vendors are relying on the battery manufacturers to invest the money in the research and development on battery life."

Airlines, page 42

Unix ebbs; users flow to Win NT

▸ *Compatibility with PC tools wins converts*

By Jaikumar Vijayan

CLOSER LOOK

WINDOWS NT is the new religion of the workstation market. And it is making converts of the Unix faithful.

Lower costs, increased manageability and standardized platforms are pushing Windows NT systems deep into Unix workstation territory.

The growing appeal of Windows NT workstations for Unix users also lies in NT's inherent ability to consolidate workstation applications and PC productivity tools on one platform.

"Unless you are using it for really high-end applications, there is little reason to maintain a Unix environment for workstations and a separate one for office productivity applications," said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

Unix, page 42

NT link helps AS/400 hold its ground

By Tim Ouellette

THANKS TO the integration of the AS/400 with Windows NT, AS/400 users are getting a chance to have the best of both worlds.

But observers said that integration won't necessarily lure a huge new following to the AS/400.

Instead, the midrange system will be able to hold on to its loyal user base.

HOLDING STEADY

"The AS/400 won't see many major new user infusions," said John Logan, president of Aberdeen Group, Inc., a consultancy in Boston. "Most large companies go to Windows NT or even Unix for the choice of client/server applications available."

Still, Logan and other analysts lauded IBM's Windows integration efforts, which have given AS/400 shops the chance to access AS/400 data, run AS/400 applications and manage AS/400 networks completely from Windows NT.

About 70% of the user base uses Windows to access AS/400s, IBM officials said.

Most promising is support for Windows NT on the AS/400's onboard PC Server, a processor board that shares the AS/400's disk storage, security and management while acting as its own

AS/400, page 42

Macintoshes, compatibles in bloom

By Lisa Picarille

SPRING HAS SPRUNG — and with it the promise of a fresh crop of Macintoshes and Macintosh-compatible systems.

Apple Computer, Inc. last week introduced a line of consumer systems that reach speeds of 300 MHz and a Macintosh for the business market that runs Windows software.

And Macintosh clone makers Power Computing Corp. and

Users, page 44

New systems from Power Computing

Processor: 210 MHz and 180 MHz

RAM: 16M bytes

Hard drive: 2G bytes

Cache: 1M byte of Level 2

CD ROM: 16-speed drive

3-D hardware graphics accelerator: Built in

PCI slots: Three

Base price: $2,395 (210-MHz system); $2,095 (180-MHz system)

Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

PC-TV on tap

Compaq Computer Corp., Microsoft Corp. and Intel Corp. last week endorsed a proposal to bring digital TV services to desktop PCs and conventional television sets. The proposal was announced at the National Association of Broadcasters convention in Las Vegas. The three companies also said they plan to equip future PCs to receive transmitted digital video and data. That could happen by late next year.

Handhelds catch on

Handheld computers will catch on in the corporate market during tha next few years, according to e study by Frost & Sullivan, Inc., a research firm in Mountain View, Calif. There will be increased acceptance of handhelds in fields such as retail, manufacturing and health care as users seek lower costs for mobile computing and as the devices become less expensive, among other factors, Frost & Sullivan said. Merket revenua is expected to reach $1.77 billion in five years.

Kiwi notebook

Kiwi Computer, Inc. in Santa Clara, Calif., has released a 166-MHz Pentium MMX notebook. It features 32M bytes of memory, e removable 2.1G-byte hard drive, an 11.3-in. active-matrix screen and space for two Type II PC Cards or one Type III PC Card. It costs $3,999.

What percentage of new application code is being written, developed and/or acquired by your firm?

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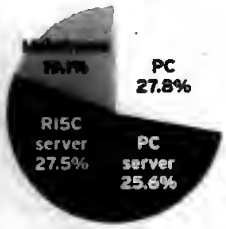

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CLOSER LOOK
Intel workstations vs. Unix

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3-D hardware graphics accelerator: Built in

PCI slots: Three

Base price: $2,395 (210-MHz system); $2,095 (180-MHz system)

	PC workstations	Unix workstations
Operating system	Windows NT 4.0	Unix
Processors	200-MHz Intel Pentium Pro	Proprietary RISC
Memory	From 32M to 512M bytes Extended Data Out and Error Correcting and Checking (ECC)	From 32M to 512M bytes ECC
Disk	2G bytes to more than 6G bytes	2G bytes to more than 6G bytes
I/O	Ultra Fast/Ultra Wide SCSI	SCSI-II, Ultra SCSI
Graphics	2-D or 3-D	2-D or 3-D (proprietary cards)
Starting price*	$4,500 (monitors cost extra)	$6,000 (monitors cost extra)

*Varies depending on configuration

Unix ebbs; users flow to Win NT

CONTINUED FROM PAGE 41

"Windows NT allows you to have the best of both worlds ... and the software costs, at least, are significantly lower than Unix," said Mike Bailey, a systems integrator at Lockheed Martin Enterprise Information Systems in Sunnyvale, Calif.

But Unix vendors, fighting to stem the tide, are giving users many new capabilities — and reasons to stick with them.

During the past year, major Unix workstation vendors such as Sun Microsystems, Inc., Silicon Graphics, Inc. and Hewlett-Packard Co. have cut prices by nearly 50% across the board. Entry-level Unix workstations now start at approximately $6,000 and offer capabilities that used to be available only on much higher-priced systems.

And increasing commoditization of disk drives, monitors and bus architectures means that Unix users can expect to see more capabilities being bundled in relatively low-cost systems.

"There is this belief that Windows NT is easier to operate and maintain. And that is true, but only up to a point," said Randy Robinson, a network administrator at NASA's Ames Research Center in Mountain View, Calif. "It starts getting complex as you start adding capabilities."

PC workstations are typically defined as systems based on Intel Corp. hardware and Microsoft Corp.'s Windows NT operating system.

Built inexpensively using highly standardized components and PC architecture, the systems so far have been selling mainly in the financial, mechanical design, two-dimensional drafting, three-dimensional modeling, animation, geographic information systems and some low-end scientific applications markets.

Most PC workstations include a standard 32M to 64M bytes of Error Checking and Correcting memory and more than 2G bytes of disk space.

Such boxes typically start at around $4,500; some rudimentary configurations cost less. A well-configured system with decent 3-D graphics and monitor will cost at least $8,000, observers said. In comparison, a decently configured Unix workstation starts at more than $10,000.

Leading the Wintel drive are a horde of vendors — including some major Unix workstation players — such as Compaq Computer Corp., Hewlett-Packard Co., IBM and Digital Equipment Corp. Digital, which was one of the earliest Windows NT workstation vendors, also offers Alpha-based models.

"It really is becoming a question of what applications Windows NT is not taking" from Unix.
– Wade Patterson, Intergraph

Until recently, Wintel boxes were dismissed by Unix vendors as glorified PCs with graphics cards. But Windows NT 4.0, fast new processors and rapidly improving graphics technology are changing that image — and fast.

In the graphics arena, vendors such as Matrox Graphics, Inc., ELSA, Inc., Intergraph Computer Systems and 3D Labs, Inc. have upped the ante with increasingly sophisticated 2-D and 3-D graphics boards and controllers. Vendors such as IBM and Compaq use those boards in their workstations.

And some Unix vendors are moving their Unix graphics to the NT space. For example, Digital has migrated its Power Storm 3-D cards to NT workstations, and HP is doing the same with its Visualizer 3-D graphics.

Costing anywhere from $1,500 to more than $10,000, the cards and controllers offer texture-mapping, lightning calculations and geometric transformation capabilities that compare well with low-end to midrange Unix systems, observers said. The release of Windows NT 4.0 also has resulted in a spate of workstation application development activity.

Some analysts estimate that 50% to 60% of all Unix workstation applications have already been ported to Windows NT, and the number is increasing rapidly.

Shipments of Unix on RISC workstations declined by 5% to 10% last year, according to "Inside the New Computer Industry," a newsletter in Carmel, Calif. International Data Corp. in Framingham, Mass., estimated that revenue from Unix workstations fell from $12.1 billion in 1995 to $11.4 billion last year.

Although Windows NT systems are slowly starting to take over the sub-$12,000 workstation market, Unix still dominates in the midrange and high end. Those systems typically start at around $15,000 and scale into the hundreds of thousands of dollars.

High-end Unix systems are used for advanced applications such as computational fluid dynamics and advanced 3-D modeling, and they feature far more scalability, more sophisticated graphics subsystems, faster I/O capabilities and faster floating-point capacity than their Wintel counterparts. □

Airlines serve mobile workers

CONTINUED FROM PAGE 41

Some progress should be made by October, when the Airline Electronic Engineering Committee is expected to adopt the Empower standard interface for in-flight power. By year's end, planes from American Airlines, Delta Air Lines and Canadian Airlines will be retrofitted with the adapter interface in the armrests at each seat.

Vendors have announced the following technological and battery innovations aimed at making life easier for mobile workers:

- AER Energy Resources, Inc. in Smyrna, Ga., announced the development of a zinc-air battery cell that is smaller than what is currently available. It will allow the manufacturing of higher-power batteries for laptops and other portable devices. The prototype battery weighs 3.2 pounds. In testing, the battery has been able to power Pentium portables for up to 10 hours. AER hopes to have products available in the coming year.
- GTE Airfone in Oak Brook, Ill., a subsidiary of GTE Corp., recently announced it will install phones with its Advanced Digital Airfone Service on up to 335 aircraft and up to 50 regional jets. Users will be able to have in-flight seat-to-seat communications, make and receive calls, and send and receive data and faxes. Pricing wasn't available.
- Xtend Micro Products, Inc. in Irvine, Calif., is shipping an adapter that works with most notebooks and is based on the Empower standard. The Dual Mode Connector adapter costs about $80 and will work with airline laptop power port interfaces. □

WINDOWS NT VS. AS/400

Platform	Pros	Cons
Windows NT	• Low entry cost • Graphical interface • Availability of groupware	• Not integrated • Weak batch processing • Weak database
AS/400	• Low cost of ownership • Integrated tools and database • Reliable and secure	• Weaker PC affinity • Most applications still text screen • High entry costs

*Source: Midrange Open Business Strategies, Rochester, Minn.

AS/400 holds its ground

CONTINUED FROM PAGE 41

PC server. That support will come next year, IBM said, and about one-quarter of the user base is expected to use it.

"The market demands that we have good, strong interoperability with Microsoft," said Bill Zeitler, general manager of IBM's AS/400 division, at last week's Common user group conference in Boston.

But some see the integration of NT and AS/400 as one more step in Microsoft's efforts to flood the market with NT.

"Microsoft wants to surround the AS/400 and starve it," said Dave Peterson, president of Midrange Open Business Strategies, Inc. in Rochester, Minn. Microsoft wants to supply enough Windows NT tools around the AS/400 so users eventually will find they can use Windows NT alone, he said.

For some users, the addition of Windows NT on the AS/400's internal PC card next year is too little, too late. United Auto Parts, although a major AS/400 shop, plans to phase out AS/400s at its retail locations in favor of less expensive Windows NT servers.

"We don't need to upgrade the AS/400s," said Marc Dorais, applications development manager at the Montreal-based retailer. "The price of a strong NT server is cheaper than upgrading AS/400. And our expertise is going in that direction [NT]."

Other users said stand-alone Windows NT servers are more beneficial; they can connect to more peripherals and use less expensive disk resources than those available from the AS/400. □

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IS tries to simplify browsing for users

By Matt Hamblen

AS MORE AVAILABLE plunge in to intranets and data warehousing, the challenge for information systems managers becomes: How do end users find something useful in all those terabytes of stored data?

Search engines from Infoseek Corp. in Santa Clara, Calif., and AltaVista's Private Extension by Digital Equipment Corp. in Maynard, Mass., are available to help index files of graphics, sales and other organization data for quick retrieval. But they aren't always enough, users and industry experts say.

"I think people are frustrated trying to find things at the end-user level if you have all those icons in little boring boxes," said Ken Sliwa, a Macintosh systems specialist at *The Arizona Republic* newspaper in Phoenix. "If it was more interesting and more elaborate with more art [on the computer screen throughout the company intranet and database], it would make it easier to find things."

The Arizona Republic's end users regularly search through 30 servers and 80G bytes of data, and IS managers are trying to structure data repositories within advertising and graphics workgroups and add sounds and color to opening screens, Sliwa said.

Mark Blomquist, manager of technical support at Rural Metro Corp. in Scottsdale, Ariz., faces similar worries about making his database accessible to what he calls "Jane Six-pack."

"The question I've been facing for two years is, 'How do I get hundreds of users to take advantage of all this stuff we have?'" Blomquist said.

He said he even hired an art history major in his IS department to help make computer screens more user-friendly. "He can just make it work more intuitively a lot better than the IS guy who always wants a bunch of boxes and indexes," Blomquist said. "But, of course, the traditional systems guys don't like that approach."

Browsing through tons of data is "only going to get worse before it gets better," said Steve Kirsch, chairman of Infoseek.

He said search engines "work well" with less than a million documents in a database, but there are still problems for some users who want to quickly find exactly what they want in large databases.

PAY ATTENTION

IS managers need to take greater pains to relate to end users in building browser applications, one large storage user said.

"We've created a bit soup, [leaving us] with the need to bring everything into a central store," said Eric Haseltine, vice president and chief scientist of creative technology at Walt Disney Imagineering in Glendale, Calif. "I'm interested in making this bit soup, this store of information, more human and understandable."

To help increase the ease of access to stored data, applications developers "ought to borrow a page from the artist's book," to make associations between end user information queries and storage systems more intuitive, he said.

"People are overwhelmed by all this information.... The user has a little teeny soda straw and is looking into a huge wine vat," Haseltine said.

USE EMOTIONS

Disney officials are grappling with ways to enhance users' ability to search many terabytes of Disney data and old films. The strategies include adding emotion-laden art to file icons, Haseltine said.

Instead of a manila file folder icon on a graphical user interface with the file name "Finance" underneath, Haseltine suggested using a drawing of the Evil Queen from Snow White above the finance file name.

A file of games could be identified quickly with a smiling cartoon of a cute dog, Haseltine said.

"The bandwidth of the emotional is much broader than the technical" Haseltine said. "I just know in a nanosecond what each one of those file logos [with the cartoon icons] represents." □

Users have new Macs, compatibles to choose

CONTINUED FROM PAGE 41

Umax Computer Corp. both unveiled lines of midrange Macintosh systems.

Apple rolled out two Power Macintoshes for business users that also run Microsoft Corp.'s Windows 95 using chips from Intel Corp. and Cyrix Corp. The Power Macintosh 7300/180 PC Compatible and the Power Macintosh 4400/200 PC Compatible let users run Macintosh and Windows applications simultaneously by switching environments with a key combination. Those were the company's first product announcements since its restructuring last month.

The 7300/180 uses a PowerPC 604E chip running at 180 MHz and has 32M bytes of RAM. The PC Compatibility card has a 166-MHz Intel Pentium processor and 16M bytes of RAM. The 7300/180 is expected to be priced starting at $3,200.

Apple also took the wraps off its Power Macintosh 6500 series, a consumer-oriented line that replaces Apple's Performa family. It features five models that run a PowerPC 603E processor at speeds ranging from 225 to 300 MHz. Prices will range from $1,999 to $2,999.

David Hidding, a knowledge systems coordinator at KPMG Peat Marwick's Health Care and Life Sciences division in Atlanta, said he will continue to purchase Power Computing machines for strictly Macintosh use. But he acknowledged that Apple's new 7300 is attractive. Hidding's division has about 200 Macintoshes and 200 PCs.

"The fact that it's a fast computer and can run Windows software is very important in a mixed environment as we go forward," Hidding said. "Apple's previous systems with the DOS cards crashed a lot. But now with the Pentium chip built in, the 7300 sounds like a good deal."

Apple's 4400/200, aimed at the education market, has a PowerPC 603E chip and 32M bytes of RAM. It has a P166-MHz 6x86 Cyrix processor and 16M bytes of RAM. It costs $2,400.

Power Computing hopes to differentiate its new machines by using an increased bus speed. Most Macintoshes operate at bus speeds that range from 40 MHz to 50 MHz.

Rival clone maker Umax is shipping its SuperMac S900/250 Mac OS-compatible workstation. Priced at just less than $5,000, the model features a PowerPC 604E CPU running at 250 MHz, 32M bytes of RAM and an eight-speed CD-ROM drive. It also has a 2.1G-byte SCSI hard drive, 1.4M-byte floppy disk drive, six Peripheral Component Interconnect card slots and four available drive bays for adding devices. □

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According to the Bensenville, Ill., company, Satellite has a capacity of 60 to 135 discs and can handle up to five drives.

The jukebox includes packs of 15 CDs, each with a Memory Trak identification system for better CD management.

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HEWLETT-PACKARD CO. has announced JetDirect, a 10/100Base-TX print server card.

According to the Palo Alto, Calif., company, the card was designed to make it easier to install and manage printers in Ethernet or Fast Ethernet settings. Network administrators currently can attach printers to 10Base-T networks; they will be able to expand to 100Base-TX in the future.

JetDirect costs $479.

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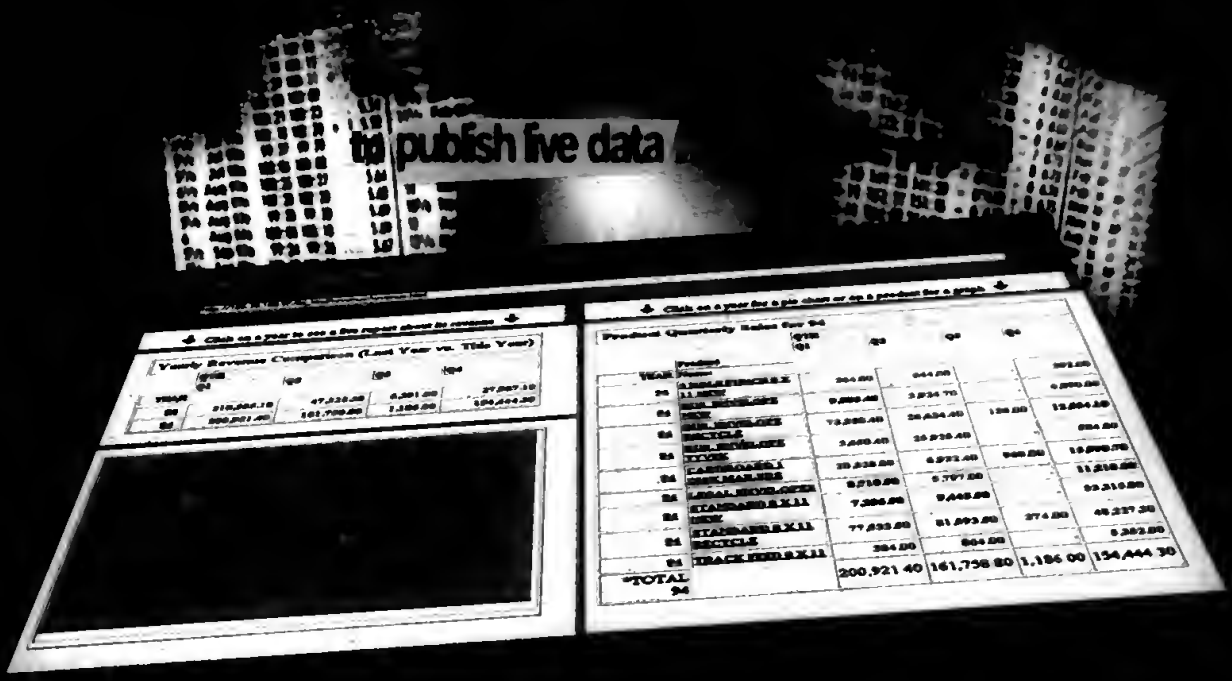

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White Paper

DATABASE ASSOCIATES INTERNATIONAL

Managing the Next Generation of Web Applications

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New Role for Object-Relational Database Management Systems:

Managing Intelligent Web Applications

As the World Wide Web grows exponentially as an application platform, it is also ushering in a new rate of change in information technology. Products now evolve at "Web speed," with new releases arriving in months instead of one or two years.

It is increasingly harder to adapt to this rate of change and to users' insatiable demands for access to information on the Web. As Web applications grow in size and complexity, the need for comprehensive management tools arises. Such tools must be able to manage and maintain Web application content, understand native Web data types, and provide integrated support for the Java development language. The need for Web application management is converging with new database management systems (DBMS) capabilities to create the intelligent Web information manager.

This White Paper will define the requirements for an intelligent Web information manager and will describe why this is becoming a role for the object-relational database management system (ORDBMS).

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This White Paper was written by Judith R. Davis of InfoIT, Inc., a DataBase Associates International company. DataBase Associates International is a consulting and training company specializing in the fields of database, distributed computing, data warehousing and Web technology.

InfoIT is an information service from DataBase Associates. It provides in-depth analysis on all aspects of evolving information technologies. InfoIT delivers this information to its clients through its bimonthly magazine InfoDB, product and technology reports, CD-ROM and the InfoIT Web server.

Ms. Davis, a principal with InfoIT, has over 15 years of experience as a consultant and industry analyst. She specializes in database management systems and related technologies.

This White Paper on intelligent Web managers is published by Computerworld Custom Publications. For reprints, contact Heidi Broadley at (508) 820-8536 or at heidi_broadley@cw.com. Questions or comments on the White Paper should be forwarded to managing editor Peter Bochner at (508) 820-8289 or peter_bochner@cw.com.

ILLUSTRATIONS BY JOHN PACK

Realizing the Promise of the Web

The promise of the Web is [illegible] an interactive environment providing access to up-to-the-minute information and offering organizations the potential to deliver data tailored to users' individual requirements. The need to deliver the right data in the right format to the right person at the right time applies to intranets and the public Internet.

But for most Web users, reality lags far behind the promise. They are plagued by massive information overload, limited search capabilities, slow performance and the inability to act on the information presented.

Web site managers and application developers face difficulties too. Creating Web applications is easy compared to the efforts of managing increasing volumes of Web content and maintaining performance as the number of users grows.

An intelligent Web information manager is needed to provide support for Web applications in four areas:

1. **Storage and management of all types of Web application content, including application logic, in one integrated Web information system.** This includes Web pages, documents, spreadsheets, presentations, structured data from RDBMSs and legacy data sources, organization-specific data (e.g., engineering drawings) and multimedia data.

Web information managers don't just store and manage these data types. They also natively understand and can manipulate their content, such as HTML formatting and hyperlinks among Web pages.

The ability to push intelligence about application semantics into a Web information manager reduces the need for application code, resulting in faster application development and deployment, better performance and more flexibility in partitioning applications.

2. **Access to dynamic Web content.** This involves the abilities to easily update Web content and to create, on the fly, dynamic Web pages that reflect these updates to the Web database. Web pages are no longer static; each is based on information known about a user or preferences entered by the user.

Example: A corporate intranet enables a customer service rep to retrieve data on any product by pressing a "product" button, which displays a page with the latest product list by category. If the user checks a specific product, the next page delivered to the Web browser contains only information on that product.

Dynamic Web pages and Web content ensure that information delivered to the user meets that user's expectations. And Web content can change without requiring modifications to the application itself.

3. **Publish-and-subscribe services.** These allow each user to define and automatically receive information of interest to them.

It's

about time your web application developed a mind of its own.

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What is an intelligent web application? One that lets you deliver dynamic content that includes the whole spectrum of multimedia like photos and maps as well as documents. One that lets you individualize the content for every user, lets them make intelligent queries and get real time responses. One that lets you broadcast content directly to subscribers. All done quickly, easily, and economically.

That's because instead of storing web applications as flat files, the Informix Universal Web Architecture stores the entire application in the database. So you get web applications that are easier to develop, easier to manage and that deliver the high performance you need. Everything from one-on-one customer inquiries to web client server solutions to fully secure internet commerce. In short, if you can imagine it, you can do it.

There's no doubt the web offers enormous potential. But it takes the Informix Universal Web Architecture to let you do something intelligent with it. For more information, call 1-800-688-IFMX, ext. 90. Or visit our web site at www.informix.com/web

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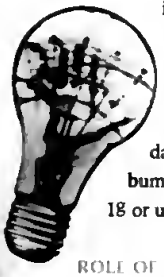
The system monitors changes to the content of the Web information database and delivers new or changed information to each user as appropriate.

Example: An engineering manager receives an e-mail or other notification (pop-up box, ticker tape, etc.) over an intranet whenever a particular design specification is updated.

Publish-and-subscribe (or push computing) reduces information overload and allows Web applications to build on the concept of one-to-one communication by tailoring information delivered to each user.

4 Integrated query capability across all Web application content. Integrated content searching is the ability to access all types of data in a single query, giving users faster access to the information they want.

Example: An insurance examiner requests all claim forms for accidents at a specified location involving damage to the left bumper and a driver 18 or under.



ROLE OF ORDBMS

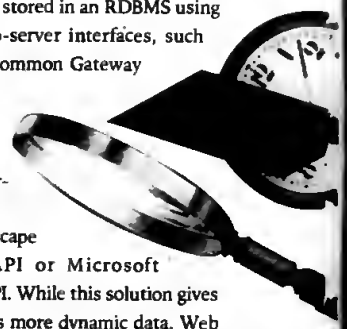
One approach to managing Web applications is the object-relational DBMS. A traditional relational database management system (RDBMS) provides scalability, availability, reliability, transaction management and server-side implementation of integrity and business logic. An ORDBMS adds to these data management capabilities the extensions to support complex business objects in the server — new data types, functions and application logic.

Example: Storing geospatial information as coordinates, allowing the DBMS itself to calculate the distance between any two points. Such native intelligence about new types of data and ways to manipulate the data enriches the DBMS with application-specific semantics. This improves developer productivity by reducing development time and the need to write application code, gives a developer flexibility to determine where application logic should execute, and enhances performance with the option to execute application logic closer to the data.

ROLE OF DBMS

In first-generation Web applications, existing information such as marketing collateral is converted to HTML and stored in flat files on a Web server. There is no easy way to tailor this static material; every user receives the same Web page. And all Web content is in operating system files, with the only facilities for management provided by file-system directories.

Second-generation Web applications add direct access to data stored in an RDBMS using Web-server interfaces, such as Common Gateway Interface, Netscape NSAPI or Microsoft ISAPI. While this solution gives users more dynamic data, Web application content is still divided into operating system files and database data, making it hard to manage and control Web content as an entity. Nor does the system necessarily scale when content is added and the number of users grows.



Web information managers are the start of a new generation of Web applications. In an ORDBMS, a universal database server manages diverse Web application content and allows users to search through new types of business data, including documents, spreadsheets, presentations, and engineering drawings. It also provides robust data management, high performance through parallel processing, and the ability to push more application semantics into the database itself. The result: a comprehensive Web data environment.

Creating intelligent Web applications involves more than making existing client/server applications Web-accessible (which simply lets users access an application with a Web browser interface instead of a proprietary client interface provided by the development tool). This has certain benefits — it makes the application platform-neutral for deployment and reduces training costs — but does not enhance the application or add user functionality.

In contrast, an intelligent Web information manager provides a platform for not only migrating client/server applications to the Web, but also enhancing them with access to all data across the organization.

INFORMIX UNIVERSAL WEB ARCHITECTURE

Informix Software addresses all these requirements with its

Universal Web Architecture. This set of components provides intelligent Web application management as well as a framework for building database-enabled Web applications.

These components include:

- INFORMIX®-Universal Server and DataBlade modules;
- INFORMIX-Universal Web Connect;
- strategic partners;
- Java Anywhere; and
- INFORMIX-Enterprise Command Center.

INFORMIX-Universal Server is an ORDBMS that can store and access all types of Web-oriented data and applications. Optional DataBlade modules enable the RDBMS to natively understand the semantics of new application requirements and data types, such as images, text, time series, geospatial, audio and video.

Informix's Web DataBlade module understands HTML pages as a data type and includes tools to develop Web applications using templates called AppPages. (Netscape's Enterprise Web Server is available as an option.)

INFORMIX-Universal Web Connect, the middleware component that connects INFORMIX-Universal Server with the Web server, provides:

- Services such as state management, connection management, load balancing and access control. Publish-and-subscribe capabilities will be available in

the next release.

- Tools such as AppPage Builder, a tool for creating AppPage templates, and Web DB Publisher, a Web report writer.
- A published API used by Web tool vendors to integrate their products with the INFORMIX-Universal Server environment.

INFORMIX-Universal Web Connect allows client/server applications built with INFORMIX-OnLine Dynamic Server™ to move to the Web and provides a migration path to INFORMIX-Universal Server for enhancing them through AppPage Builder. Because INFORMIX-OnLine Dynamic Server does not support DataBlade modules, AppPage Builder takes care of understanding HTML as a data type and creating Web pages with embedded SQL. Current Informix customers can thus build a robust Web information database today.

Informix is working with partners such as Bluestone, HAHT Software, NetDynamics, NetObjects, Netscape and Wallop Software so their tools can transparently create AppPage

tags and Informix SQL statements. Informix is working with these vendors and others to integrate products for Web application development, site management and site conversion into the Informix environment.

When targeting Web applications, tight integration of Java with the database environment is critical; **Informix's Java Anywhere** family addresses this need. Java is an attractive language for developing Web applications, given its platform independence and ability to execute code anywhere. The Informix Java API offers direct database connectivity for Java applications.

Informix plans to embed the Java Virtual Machine in INFORMIX-Universal Server to allow developers to write stored procedures and DataBlade modules in Java.

INFORMIX-Enterprise Command Center combines a systems management tool with a Web-browser interface and a central console for managing distributed Web content. It will support INFORMIX-Universal Server soon.

CONCLUSION

ORDBMS products can play a key tole in developing intelligent Web applications. The next generation of DBMSs maps well to the requirements of next-generation Web applications. Organizations should begin exploring the benefits of new architectures designed to manage dynamic Web applications and Web content. ✦

For more information about Informix products and services, please call us at 1-800-688-ISMX, or visit us on the Web at www.informix.com.

Unleashing Business Innovation

Informix Software is leading the next great wave in database innovation to enable the world's leading corporations to manage and grow their businesses. With its focused technology strategy, superior customer service, and best-of-breed partnerships, Informix is the demonstrated technology leader for corporate computing environments ranging from workgroups to very large OLTP and data warehouse applications — as well as a catalyst in major new IT trends such as dynamic content management, the Web, smart cards, and mobile computing.

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Software

Briefs

OBJECT DATABASES

Users go slow on Universal Server

By Craig Stedman

OBJECT-ENABLED databases such as Informix Software, Inc.'s Universal Server may be the way of the future. But for most users, the future isn't now.

Hoping to capitalize on its perceived technology lead over rivals such as Oracle Corp. and Sybase, Inc., Informix has been riding Universal Server hard as a platform for applications involving objects, multimedia data and the World Wide Web.

BABY STEPS

But even early adopters of the object/relational database said they are proceeding with caution while waiting for Informix to add more functionality to Universal Server.

Brad Jensen, a vice president at Sabre Decision Technologies in Fort Worth, Texas, said Universal Server is in "a sort of semiproduction release" at this point, at least for the complex data warehousing uses Sabre has in mind.

Jensen oversees development of an object-based warehouse that is due to go live next year. The warehouse will hold up to 3T bytes of data for use by planners at American Airlines, which, like Sabre, is a unit of AMR Corp. in Fort Worth. Universal Server's ability to store information as business objects "rather than technical mumbo-jumbo" should make life easier for both application developers and end users, Jensen said.

But Sabre doesn't expect to get what it considers a produc-

Universal Server, page 50

Filling niche demand for self-service

By Randy Weston

ESS SOFTWARE, INC. is rolling out a suite of self-service applications designed to let employees and managers access information such as personal records and benefits packages. But then again, so is every other vendor.

Most of the major enterprise software vendors, including SAP AG, Oracle Corp., PeopleSoft, Inc. and Lawson Software, Inc., have such technology on the market or in development.

The self-service applications let companies extend their client/server technology to casual users to save time and money by freeing human resources and

Self-service, page 51

ESS Software allows workers to update address records from a PC or touch-screen

NCI to introduce NC productivity applications

By April Jacobs

ORACLE CORP. spin-off Network Computer, Inc. (NCI) in Redwood Shores, Calif., plans to introduce a suite of productivity applications, including electronic mail and word processing, designed for network computer users.

The software, expected to hit the street in June, is aimed at corporate users. NCI is expected on Wednesday to announce OEMs for its Intel Corp.-based network computer. The software release will closely follow that announcement.

EASIER TO SWALLOW

Analysts have been saying for months that the release of productivity applications that resemble those from Microsoft Corp.'s Office suite would make network computers more palatable to users who are accustomed to PCs.

NC Access, NC Enterprise Server and NC Server Manager, the three pieces of NCI's software suite, together provide tools for managing network computers from a central location, as well as server-based software and client-based software

NCI suite, page 50

ORACLE SPIN-OFF

NCI plans to include the following in its NC Access software suite aimed at network computers:

- E-mail
- Browser
- Word processing
- Calendaring
- Terminal emulation

Universal Server caution

CONTINUED FROM PAGE 49

tion release of the database, with some bug fixes and unspecified new features, until the summer, Jensen said. Even so, Informix still appears to be well ahead of Oracle in supporting robust object technology, he said.

However, Oracle, in Redwood Shores, Calif., also is building new transaction processing and data warehousing features in to its upcoming object-enabled Oracle8 database. By contrast, Menlo Park, Calif.-based Informix has focused Universal Server mainly on applications involving multimedia data types.

And the aggressive promotion of Universal Server at the expense of Informix's mainstay OnLine relational engines is biting back with a vengeance. An overemphasis on marketing the new database was listed as one of the key causes of a stunning first-quarter sales drop-off and loss that the company expects to report [CW, April 7].

Informix "got ahead of the market a little bit," said Stan Dolberg, an analyst at Forrester Research, Inc. Complex data such as images, text and audio are still largely stored as files rather than in a database, and that probably won't change until "well into 1998," he said.

> Informix officials said the latest version of OnLine Dynamic Server will be incorporated into Universal Server late this year. OnLine users will then be able to upgrade to Universal Server.

CitySearch, Inc. in Pasadena, Calif., expects to be one of the first companies to go live with a real business application based on Universal Server. Its Web-based guides to various cities should be switched over within three months, said Jeffrey Brewer, vice president of technology at CitySearch.

The core database technology is in place, although Informix is "adding functionality all the time," Brewer said. CitySearch now uses the Illustra object database, which Informix bought last year and combined with the OnLine relational technology to create Universal Server. The combo should be more powerful and easier to manage than the Illustra software, he said.

Other users remain more cautious. "We're still learning a lot about what this stuff really means," said an IS official at a major financial institution that uses Informix's databases. Selling Universal Server internally hasn't been easy, added the official, who requested anonymity. "Sometimes [vendors] have these visions that people just can't see." □

NCI productivity suite

▸ *Software out in June, aimed at corporate users*

CONTINUED FROM PAGE 49

for E-mail, World Wide Web access, word processing, spreadsheets and calendaring.

Those applications are the most popular among users and the most needed, according to Ray Peterson, an information systems specialist at Wisconsin Indianhead Technical College in Shell Lake, Wis.

NETWORK COMPUTERS

Peterson, who is looking at network computers for students and staff, said he doesn't want to turn to a remote access solution for Windows-based applications when he installs network computers, which is the only way to access them now.

Instead, Peterson is looking for something such as NC Access, which provides much of the same functionality without adding another layer of communications to the network computer environment, he said.

"This would fit perfectly into what I'm doing," Peterson said.

NC Access consists of a kernel operating system that lets the machine boot; security and audio and video code that allow a variety of file types — such as .GIF and .TIF graphics files — to be accessed; and RealAudio capabilities.

Executable files are run locally and on the server, with most being run on the server.

There is also a smart-card module on the desktop for user authentication and to allow users to work at different network computers. Emulation software lets users access terminal-based applications.

Pricing for the NC Access and Server suite starts at about $5,000 for a concurrent-use license. □

Rick Hanauer, Sr Vice President, Sales and Marketing, Pacific Coast Feather Company.

Filling the niche for self-service

CONTINUED FROM PAGE 49

other personnel for other, more vital jobs. With these applications, end users can update their personnel records, change an address, check on their 401(k) or perform other similar tasks from their desktop, a telephone or a kiosk on a shop floor, for example.

CLIENT/SERVER TECHNOLOGY

ESS, in Peabody, Mass., offers a package of applications that run on top of an enterprisewide system such as PeopleSoft or SAP's R/3. Mory Bahar, vice president of marketing at ESS, said the company is targeting its product at companies with mixed environments that don't want to build their own self-service applications. The product can work on top of most back-office processing systems, such as PeopleSoft, Oracle or SAP's R/3, as well as mainframe systems.

For example, a company using PeopleSoft's human resources applications, outsourced payroll services and legacy mainframe financial applications can tie together the various elements for self-service applications using ESS software. If the company used PeopleSoft's self-service offering, it would also need to develop its own application programming interfaces for the outsourced payroll and mainframe financial systems.

ESS's system out of the box can be accessed through a browser, Windows, by Touch-Tone phone or from a touch-screen kiosk on a factory floor — unlike the leading vendors' Web-based offerings.

In fact, PeopleSoft, Oracle, and SAP, as well as smaller players such as Geac Computer Corp. in Markham, Ontario, have partnership agreements with ESS to fill some of these functional areas.

But analysts warn that it is only a matter of time before users can get what ESS offers as part of a larger Oracle, PeopleSoft or SAP application package.

"ESS is a best-of-breed niche supplier, and it's a niche that the vendors ESS now partners with would like to exploit in the future," said Judy Hodges, an analyst at International Data Corp. in Framingham, Mass. "For now, they provide an interesting solution for the self-service space, and the product is worth investigating. But ESS will always have to be ahead of the curve to survive."

NO CHOICE

Immediate need and a lack of other choices led The Fluor Corp., a $12 billion international construction and engineering firm, to roll out ESS Software's product to its North American operations of 10,000 salaried employees and 20,000 craft employees who are mainly laborers without access to a computer. The crafts people can access the system by phone.

Better known as Fluor-Daniels, the Irving, Calif.-based company uses a mainframe human resources system. Curt Mueller, director of human resources information systems at Fluor-Daniels, said that when his office decided to investigate a self-service system in early 1995, there were few options for a mainframe shop. Those options are still limited, he said.

Since then, self-service applications have "become part of the corporate culture" at Fluor-Daniels, Mueller said. "We saw dramatic usage early on, with all the area-code changes in the last year. Most of the people just went in and changed their area code on their records themselves, which did us a big favor."

ESS Software's nine new applications join eight already on the market.

The package costs between $4,000 and $10,000 per application for a company with fewer than 3,000 employees to between $10,000 and $36,000 per module for a company with 10,000 to 25,000 employees. □

NEW PRODUCT

RESEARCH SYSTEMS, INC. has announced Interactive Data Language Version 5.0, a fourth-generation programming language for developers who build data-analysis and visualization applications.

According to the Boulder, Colo., company, Version 5.0 includes mathematics, statistics, graphics, image processing, mapping and general data-manipulation features. It also includes support for OpenGL and an object-oriented graphics architecture. OpenGL provides three-dimensional graphics capabilities. Pricing starts at $1,500.

Research Systems
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ALR Revolution 6X6

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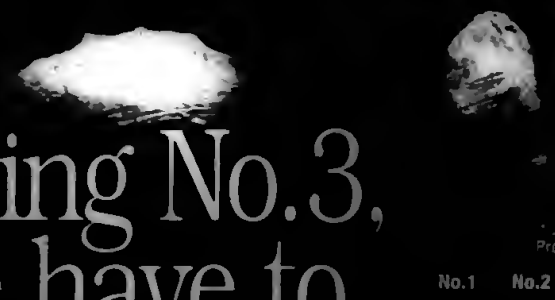

Or else.

"This is the must-buy server for any IS department that wants a high degree of fault tolerance and scalability without paying top dollar for it. And what IS department wouldn't?"

INFO WORLD March 31, 1997

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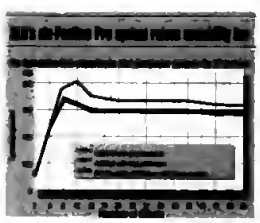
intel inside PENTIUM PRO PROCESSOR



PC Week March 17 1997

But being number three can be pretty scary. The competition from above and below is, well, monstrous. We can't afford to lose a single customer or a single potential customer. Which is why we make certain that every ALR Revolution Quad6 or 6X6 is built to deliver years of reliability in even the most demanding applications. And that's also why we make certain that our servers are, beyond a doubt, the absolute best server investment a company can make.

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All ALR Revolution 6X6 and Revolution Quad6 systems are protected by ALR ActiveCPR, ALR's revolutionary processor protection and auto-recovery technology. It's just the latest addition to ALR InforManager, ALR's own industry recognized server hardware management system.

18 integrated sensors constantly monitor vital aspects of processor operation. Out of spec readings trigger Central Processor Recovery procedures.

ActiveCPR
1) warns network users of impending shutdown
2) initiates safe auto-shut down of OS
3) latest suspicious processor off-line
4) automatically reboots OS, recovering normal network operation

Server watching automatically reboots OS in the event of a software crash.

Manufacturer / Model / Industry Recognition	ALR Revolution Quad6	Dell PowerEdge 6100	ALR Revolution 6X6	Compaq Proliant 5000
CPU	Pentium Pro 200/512	Pentium Pro 200/512	Pentium Pro 200/512	Pentium Pro 200/512
Maximum SMP	4 CPU	4 CPU	6 CPU	4 CPU
Memory	64-MB	64-MB	128-MB	128-MB
Hard Disk Drive Storage	4-Gigabytes	4-Gigabytes	9-Gigabytes	Optional
LCD Touchscreen Diagnostics	Standard	Not Available	Standard	Not Available
CD ROM	16X	8X	16X	8X
RAID Ready	6 Bays	6 Bays	6 Bays	4 Bays
Not Swappable Expansion	6 Bays	None	6 Bays	None
Expansion Slots	14 Expansion Slots	10 Expansion Slots	12 Expansion Slots	7 Expansion Slots
Network Interface	10/100 Ethernet	10/100 Ethernet	10/100 Ethernet	10/100 Ethernet
Disk Controller	Ultra/Wide RAID opt.	Ultra/Wide RAID opt.	Ultra/Wide RAID opt.	SCSI-2
Server management	ALR InforManager ActiveCPR	Intel LanDesk	ALR InforManager ActiveCPR	Compaq Insight Manager
Power Supply	575 Watts	Not Available	1600 Watts	Not Available
Redundant Hot-pluggable N+1	Optional	700 Watts	Standard	466 Watts
On-site Service	3 Years On-site Service	Optional: Redundant only	3 Years On-site Service	Optional: Redundant only
Factory Warranty	6 Year/36 Month	3 Years On-site Service	6 Year/36 Month	3 Years On-site Service
Price	$9,115*	$9,995*	$13,675*	$15,494*

*Estimated direct price, based on IDC, 3/10/97

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The Enterprise Network

LANs • WANs • Network Management

Briefs

[illegible]

"[Microsoft] is like a high-tech drug dealer. They get you hooked on their products and then, wham."

– Bill Hankard, director of systems infrastructures at Tessera Enterprise Systems. He is upset about Microsoft's policy that users who upgrade a server to Windows NT 4.0 must buy new licenses for the clients that use the server.

Clusters are coming

▸ *Novell and Microsoft promise more reliable operating systems*

By Laura DiDio

NOVELL, INC. and Microsoft Corp. have promised to deliver by year's end clustering capabilities that will boost the power of each company's operating system and deliver near 100% uptime.

Clustered servers provide users with improved performance and reliability. The inherent fault-tolerance ensures that businesses don't suffer any loss of data or interruptions in network services in the event of a server crash.

The code names for both clustering packages — Novell's Wolf Mountain and Microsoft's Wolf Pack — share a lupine theme. But the similarities end there (see story, page 57). Users and analysts said Novell's Wolf

Clusters, page 57

STELLA JOHNSON

It's now 'Intel inside' the network

By Bob Wallace

INFORMATION SYSTEMS managers looking to soup up their LAN infrastructure with advanced switching products can now look to chip giant Intel Corp. for help.

The Santa Clara, Calif., vendor last week launched an array of products that will let firms add new time- and money-saving technologies such as Layer 3 switching to their networks.

Intel's strategy is to broaden its networking portfolio beyond adapter cards and hubs. That is good news to Intel's existing customers who want one-stop shopping, though other vendors offer more — including Layer 3 switching.

Layer 3 switches have built-in routing functionality that can obviate the need for often-expensive, stand-alone routers.

Users said this boosts performance and simplifies network administration.

INTEL'S WORKGROUP SWITCHING

Product	Price
Express 100FX Switch	$11,995
Express 10 Switch+	$4,995
Express 10 Switch	$3,295
12-port expansion module	$1,195
Express 9100 Router	$1,300
Express 9200 Router	$1,300

Duane Ellis said he sees savings in implementing Intel's new Layer 3 switch, the Express 100FX Switch.

"Without Layer 3 switching, I would have needed to buy a Cisco 7500-class router, which can cost $50,000 to $60,000, to handle routing," said Ellis, an information technologies manager at the North Miami Beach Police Department. "But with the Express 100FX Switch, which only costs $11,995, I don't need that router. It's very easy to sell those savings to management."

An increase in network traffic among the department's three

Intel, page 57

NETWORK ACCESS

SDSL has speed at right price

By Kim Girard

SOME USERS are getting a taste of new technology that turns regular copper telephone lines into an express lane to the Internet or corporate LAN.

Symmetric Digital Subscriber Line (SDSL) is a member of the family of services that bridge the speed gap between Integrated Services Digital Network (ISDN), which can be hard to install, and T1 lines, which often provide more speed than remote users need at a higher cost than they can bear.

Inter Active Solutions saved $500 to $700 per month with SDSL over fractional T1.

Although many carriers are testing SDSL and other DSL technologies, few have deployed it. Analysts don't expect mass DSL offerings from carriers for at least another year.

Early adopter HarvardNet, Inc., an Internet service provider in Boston, started offering SDSL six weeks ago in Boston and neighboring Cambridge, according to William Southworth, the company's president.

Panna Sharma, vice president of creativity and technology at Inter Active Solutions Corp., a media strategy and services company in Boston, said his company saved between $500 and $700 per month by installing HarvardNet's 768K bit/sec. SDSL service instead of a fractional T1 line, which would have cost between $1,500 and $1,700.

"We had huge growth last year, and [our 56K bit/sec.] line was getting totally bogged down and unusable," he said. "We were going to go to fractional T1, but DSL is fairly inexpensive and quick to implement."

SDSL, page 57

The Enterprise Network

LANs • WANs • Network Management

Briefs

Physical, fiscal track

Ottawa-based Asset Software International recently enhanced the PC awareness of its AssetPro software for tracking the costs associated with information systems. Naw support for LANDesk Management Suite 2.50 from Intel Corp. lets AssetPro users determine the cost of events reported by LANDesk.

Exchange management

San Mateo, Calif.-based Front-Office Technologies, Inc. this week will announce Front-Office for Exchange, a document management system that works with Microsoft Corp.'s Exchange messaging and groupware server.

The add-on software lets users publish, capture, file, retrieve and distribute documents using World Wide Web browsers, Exchange clients or Microsoft Outlook.

It adds document control features such as check in/check out and version control that aren't in Exchange. It will be available in June. Per-seat pricing is about $125.

Network General buy

Network General Corp. in Menlo Park, Calif., the leading vendor of network protocol analyzers, recently diversified its lineup of troubleshooting tools.

The firm acquired 3DV Technology, Inc. in Nashua, N.H., for $20 million to gain 3DV's Windows-based performance analysis software for routers, switches and hubs.

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Ad Life Market ... Turiel says Novell's Wolf Mountain is more effective than Microsoft's Wolf Pack. "You can duplicate Wolf Pack on any operating system today using third-party products."

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SDSL, page 57

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Phil Orton, Director of Centralized Operations, Entergy Corporation

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More info, less work

▸ *Desktalk prepares modular network management tool*

By Patrick Dryden

NETWORK MANAGERS have learned that they need to keep an eye on more than routers and the usual managed gear to detect troublesome trends or plan capacity.

So Desktalk Systems, Inc. is trying to catch up by broadening the scope of its network performance monitoring software.

PERFORMANCE MONITORING

Many network managers said they chose the Torrance, Calif., vendor's TrendSNMP tool over other products for its flexibility — it can use Simple Network Management Protocol (SNMP) to reveal details about internetworking devices that simpler reporting tools don't cover.

Now Desktalk Systems wants to gather data from diverse sources and provide a historical perspective to give managers a better grasp of overall performance. And by automating the discovery process and packaging predefined reports, Desktalk Systems seeks a new class of users who lack the time or expertise to program management tools themselves.

Desktalk Systems promises to deliver more reports based on data collected from more sources than competing network monitoring tools.

Then users ranging from chief information officers to technicians in the trenches could detect problems as they develop between complex network and system components.

"Collecting and correlating data from multiple agents would be valuable," said TrendSNMP user Richard Weiss, senior technical lead of enterprise management systems at Charles Schwab & Co. in San Francisco.

The new version, expected to be ready next month, will be modular and simply called Trend. It will warehouse data gathered from agents that report device status via SNMP as well as from Remote Monitoring and product-specific sources.

The company also will add modules called DataPipes that will extract and filter information from network, system and application management tools. Then managers can better understand related trends, said Steve Challice, marketing vice president at Desktalk Systems.

But the upcoming report set probably won't meet the needs of those responsible for large, complex networks, Weiss said.

"No tools with prepackaged reporting have been sufficient," Weiss said. "They just don't ever tell us exactly what we need to know, so it's essential that we can still customize them."

Trend will enhance the user's reporting control with new ability to view historical data, a procedural language to launch functions sequentially and new analysis features.

ALREADY THERE

Concord Communications, Inc. in Marlboro, Mass., already offers similar capability in its Network Health tools.

Trend will examine the network without requiring other mapping tools, such as Hewlett-Packard Co.'s popular but expensive and complex OpenView, and then set up the data collection required to build needed reports. Predefined Trend Solutions are reports that focus on basic performance of routers, servers or databases, for example.

Users will pay for the product according to the number of elements monitored instead of by the size of their database, as was the case with previous versions. □

Group touts improved E-mail specs

By Marc Ferranti

INFORMATION TECHNOLOGY industry leaders and large businesses last week announced a new set of standards for what they are calling business-quality messaging (BQM). They were designed to ensure secure transmission and receipt of electronic mail and other messages sent by mission-critical applications that run over intranets.

IBM and Microsoft Corp., two companies in the BQM initiative, also announced products built to conform to the new specifications. The announcement took place at EMA '97 in Philadelphia, the Electronic Messaging Association's annual conference.

Other technology companies involved in the BQM initiative are Intel Corp., Hewlett-Packard Co. and AT&T Corp. In addition, market researcher Meta Group, Inc., pharmaceutical group Pfizer, Inc. and software developers Mesa Group, Inc., Red Box Technologies, Inc. and Isocor, Inc. are part of the initiative.

The BQM group said it hopes that its specifications will provide a reliable messaging foundation that allows shrink-wrapped, business-critical applications to run on corporate intranets, officials said.

Besides announcing products built to conform to the BQM standards, IBM and Microsoft announced their support of a special interest group to help the development of BQM products.

The proposed standards include specifications for message queuing, a reliability mechanism often used in transactional messaging products, officials said. □

Ferranti writes for the IDG News Service in New York.

Clusters promise more reliability

CONTINUED FROM PAGE 53

Mountain technology is far superior and much closer to reality than Microsoft's Wolf Pack, which has been plagued by delays.

"Based on what I've seen, Novell's Wolf Mountain is a much more effective solution for a multiple server production network that is close to complete now," said Josh Turiel, information systems manager at Ad Life Marketing, Inc. in Boston. He said that with Wolf Pack, Microsoft will showcase "basic clustering similar to NetWare's SFT III with a shared disk."

"You can duplicate Wolf Pack on any operating system today using third-party products," Turiel said.

Clustering integrates the processor, memory storage systems and network connections of multiple network servers into a cooperative whole; the processing is then distributed across the various servers. This lets a business create a highly scalable, fault-tolerant and more easily managed network with no single point of failure.

Novell's Wolf Mountain will link up to four servers together. It will also include the ability to run clustered Java applications; use a 64-bit unified file system; support communications links that use TCP/IP and Asynchronous Transfer Mode; and be able to include NT Servers in clusters of Novell's NetWare machines.

DELAYED ENHANCEMENT

By contrast, Microsoft's initial Phase One of the Wolf Pack release will provide only fail-over clustering between two servers. That same functionality has been shipping in Novell's System Fault Tolerance (SFT) III software for NetWare for more than four years. Wolf Pack's Phase One clustering, previously slated to ship in the first quarter, was quietly pushed back until summer.

This has left some users cynical about Microsoft's Wolf Pack, and they are rushing to embrace Novell's Wolf Mountain.

"I can't wait to get my hands on Wolf Mountain," said Lee Roth, LAN systems manager at Southwest Airlines in Dallas. Wolf Mountain will provide Southwest with automatic load balancing and the ability to share a single set of redundant disks among the servers. This will cut down on the amount of hardware the airline needs to maintain fault tolerance and 100% uptime.

"Instead of six physical file servers equipped with SFT III to run a single reservation center, we could reduce it to three servers outfitted with Wolf Mountain to cut our hardware costs by 30% to 50%, and the automatic load-balancing characteristics will improve our performance," Roth said.

Don Ramsey, information technology architect at Dallas Children's Medical Center, said the hospital will most likely upgrade to Wolf Mountain to extend 24-hour, seven-day uptime to applications such as file imaging of medical records on its complement of Windows NT application servers.

"We don't expect Wolf Mountain initially to have all the functionality of our mature VAX cluster, but it's the best implementation for a PC server-based network that I've seen. I'm not sure Microsoft really has a clue about clustering, and Wolf Pack is still vaporware" Ramsey said. □

These names could use more life

With apologies to William Shakespeare, a rose by any other name does not smell as sweet — at least not when it comes to real clustering technologies.

Users said that not only are the "Wolf" designations of Novell's Wolf Mountain and Microsoft's Wolf Pack clustering technologies confusing, but in the case of Wolf Pack, it's misleading in terms of the functionality it claims to deliver.

"At our last Greater Boston Network User Group meeting we dubbed Wolf Pack "Chihuahua Pack" because it will have only basic fault tolerance between servers, and that's not true clustering," said Josh Turiel, manager of information systems at Ad Life Marketing. "And it's still vaporware where ship date is getting farther away each time we hear about it."

The Boston user group also changed Novell's Wolf Mountain nickname to "Wolf Hill" because it won't have all of the power of the more mature minicomputer and Unix clustering implementations in its first release. "We're really impressed with Wolf Mountain," Turiel said. "Novell is on the verge of being able to freeze the features. With some minor tweaking, they should be able to ship it fairly quickly. That's a very pleasant surprise." — Laura DiDio

SDSL

CONTINUED FROM PAGE 53

With DSL, Inter Active can also crank up the bandwidth as needed in the future, Sharma said.

HarvardNet uses equipment from San Diego-based start-up Copper Mountain Communications, which next month will roll out an SDSL product line that will allow access speeds ranging from 160K bit/sec. to 1.2M bit/sec. via existing copper phone lines.

SAME BOTH WAYS

Unlike Asymmetric Digital Subscriber Line services, which supply up to 6M bit/sec. speeds when downloading and up to 640K bit/sec. upstream, SDSL transports data at slower but equal speeds, upstream and down.

HarvardNet charges $699 per month for a 768K bit/sec. SDSL connection, added to a $1,600 installation fee that includes the user's modem. A 384K bit/sec. connection costs $499 per month.

HarvardNet's SDSL prices are "pretty darn good," said Fred McClimans, CEO at Current Analysis, an Ashburn, Va.-based consultancy.

"In some locations, people are paying $499 for a 56K bit/sec. connection," he said, citing Washington as an example.

McClimans said he expects higher-level telecommuters to flock to SDSL technologies and many lower-level telecommuters to stick with IDSL — a hybrid of ISDN and DSL technology that provides a dedicated 128K bit/sec. connection and requires no equipment upgrade on the user's end. But because pricing fluctuates from region to region, DSL technology choices often will depend on where users live, he said. □

COPPER MOUNTAIN'S SDSL PRODUCT LINE

Red Rocket 20k router that connects an SDSL user to the central office

- Two models — 10x and 30x
- 160K bit/sec. to 1.2M bit/sec. in both directions
- Price: $999 (10x); $649 (30x)
- Availability: April 30

CopperEdge 200x DSL multiplexer for the telephone company's central office

Price: $20,000 (base system); $4,188 (12-port SDSL module that supports the 10x router)

Intel does switching

CONTINUED FROM PAGE 53

buildings, not to mention the extra load from Internet access, has driven the need for more bandwidth, Ellis said.

Police use digital cameras to take pictures of suspects when they are booked. Digitized photos are available to detectives in other buildings over the network. The application helps coordinate police work, but it also eats bandwidth.

The department also is evaluating video-based applications that would require even larger pipes.

The Hillsboro, Ore., school district plans to use Intel's new switching products to form the LAN infrastructure for a new high school in which 100M bit/sec. bandwidth will be run to every desktop computer.

"We need to put big pipes in because the students will be working with multimedia. Web-based applications, which are extremely bandwidth-intensive," said Jim Harrington, network administrator at the school district. "In some cases, numerous students will be accessing the same applications at the same time and won't tolerate access or downloading delays."

More powerful desktop computers will drive the need for bigger bandwidth pipes at the new high school, Harrington said. "We have about 600 Intel machines with the slowest-equipped being 133-MHz Pentiums. We're doing this to give the students access to all the latest technologies."

For users who can't yet justify 100M bit/sec. to every desktop, Intel last week announced the Express 10 Switch, a system with 24 switched Ethernet ports and one 100M bit/sec. uplink.

The new workgroup Ethernet switch costs $137 per port, which puts it in the mix with rivals Cisco Systems, Inc. in San Jose, Calif., and Bay Networks, Inc. in Santa Clara, Calif., but behind 3Com Corp. in Santa Clara, which last week cut its per-port price to $99.

If their Ethernet switching deployment plans broaden, IS managers can add 12 more ports to the system using an expansion module that costs $1,195. Intel also added the Express 10 Switch+, a system that offers more capacity than shared media hubs, but less than an Ethernet switch. □

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The Internet

The World Wide Web • Intranets • Online Services

Briefs

Optimal Networks used its Optimal Internet Monitor software to gauge daily Internet usage by approximately 4,000 users, who accessed nearly 95,000 uniform resource locators.

The 10 Web sites most frequently accessed, according to the study, were:

www.pointcast.net (including www.pointcast.com)
home.netscape.com
www.yahoo.com (including all Yahoo searches)
www.edsbs.com
espnet.sportszone.com (the home of ESPN)
www.cnn.com
quote.yahoo.com
www.microsoft.com
www.usatoday.com
quotes.galt.com (The Quicken Financial Network)
www.excite.com

INTRANET STRATEGIES

Access records are an asset

By Justin Hibbard

AN INTRANET IS a great way to liberate corporate knowledge — and to control it like never before.

That's what companies that make their living selling information have discovered as they have centralized their data on intranets. An intranet not only can deliver information to more users than CD-ROMs, file servers or proprietary client/server systems, but it also can track access to it. That benefit can reduce a company's liability in lawsuits filed by customers who allege poor service or other complaints, users and analysts said.

John Parkinson

Ernst & Young seeks "certain patterns" in intranet logs

"Before our current intranet, much of what we had was just stuff distributed on file servers, and we had no way of tracking that stuff," said Ed Vaccaro, vice president and chief information officer at Booz Allen & Hamilton, Inc. in McLean, Va.

The company now distributes information from centrally managed intranet servers that are available to employees and clients worldwide. The system has made the company's information more accessible because any client with a browser can request pages, Vaccaro said.

Booz Allen also developed a custom system for tracking use and granting access privileges. The system has helped the company fight legal battles.

The legal department "is con-

Access records, page 66

Buying a PC online still has hurdles

WEB REVIEW ▶ *PC shopping sites*

By Kim S. Nash

MY MISSION: Use the World Wide Web to mock-purchase a PC. I was after a laptop with a docking station, a 133-MHz Intel Corp. Pentium chip, 16M bytes of RAM and a hard drive of at least 1G byte.

My results: mixed, at best.

I chose five online shops to test. Two were PC vendors: Dell Computer Corp. and Gateway 2000, Inc. Two were resellers that operate only on the Web: NECX Direct and PC Shopping Planet. One was a company known for moving all kinds of merchandise fast: Wal-Mart Stores, Inc.

Online prices at Dell and Gateway generally were the same as retail or telephone sales. A Wal-Mart spokesman suggested shopping around once you know which model you want, because prices in physical stores could beat those online.

Overall, this crop of electronic commerce players did fairly well. And so they should: If computer companies don't get this stuff right, who will?

But the going sure wasn't easy at every site.

GATEWAY 2000

Sorry, Gateway, but yours was the most boring-looking site.

Wal-Mart's Web site is simple and fast, but it doesn't allow customized PC configurations

Gateway tried to do too much, combining product information, company financials, press releases and tons of other corporate data with its online store. Some pages were huge masses of small text.

The site used frames, which meant the screen was split into grids of different sizes, each of which could be scrolled separately. Gateway also endorsed Microsoft Corp.'s Internet Explorer browser. I prefer a browser-agnostic attitude, but that's just me. (My Netscape Communications Corp. Navigator worked just fine.)

Gateway had some fun diversions, such as trivia about the company mascot, a black-and-white Holstein cow. (A cow sure puts its four stomachs to work, scarfing 327 pounds of food and water every day. But I digress.)

Scooting around the site wasn't as smooth as it should have been. For example, I clicked on "Build Your Own Gateway PC," but there was nothing to direct me to a PC with a docking station. I used the search engine to dig up the Gateway Solo. But I got sidetracked to pages that told me about Solo's virtues, with no

Buying a PC, page 64

Apps gather diverse data from the Web

By Mitch Wagner

DHL AIRWAYS, INC. in Redwood City, Calif., is building an application designed to let its customers keep track of all their packages, no matter what shipping company they use.

The application queries package-tracking applications on the World Wide Web pages of competitors Federal Express Corp., United Parcel Service of America, Inc. and Airborne Freight Corp.'s Airborne Express and displays the information on a customer's personal Web document on the DHL server.

Netscape Communications Corp. in Mountain View, Calif., had offered to build the system for $27,000. But DHL built a prototype at about one-tenth of that cost in about two hours by using the WebMethods Automation Toolkit from WebMethods, Inc. in Fairfax, Va., said Mark Lussier, lead software engineer at DHL.

> New products gather data from multiple Web sites and display it on a page or import it into another application

WebMethods' tool kit is one of two products announced recently that were designed to gather data from multiple Web sites and display it on a page or import it into another application.

The WebMethods software and CenterStage from OnDisplay in San Ramon, Calif., automatically download Web pages and analyze them for cues pointing to specific bits of information.

"We stumbled across WebMethods by accident," Lussier said. "We needed something to allow us to very quickly extract data from very diverse sources, both internal to DHL and on the Internet."

The two tool sets function similarly. They look at the text of a page for text clues — such as "stock price" — that will appear near specific information they have been programmed to find.

Internet tools, page 66

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HOW THEY STACK UP

	Dell	Gateway 2000	NECX	PC Shopping Planet	Wal-Mart
CAN CONFIGURE OWN PC	Yes	Yes	No	[illegible]	[illegible]
CAN COMPARE BRANDS	No	No	Yes	Yes	[illegible]
EASE OF USE	Excellent	Fair	Fair	[illegible]	Good
SPEED	Good	Fair	Fair	[illegible]	Good
OVERALL GRADE	A-	B	B	F	B-

WEB REVIEW ▸ *PC shopping sites*

Buying a PC online still has hurdles

CONTINUED FROM PAGE 61

nbvious way to order one. I had to use the "Back" button to find an order page.

Order entry was easy enough. Gateway offered more payment methods than Dell: cash on delivery and debit cards, in addition to credit cards and purchase nrders.

Despite delays, I got the PC I wanted.

DELL

You've got to hand it to Dell. With no slow-to-download frames and only light graphics, this speedy site was a pleasure. It's no wonder the vendor does $1 million worth of business per day online.

A form let me configure my PC by selecting options, and it kept a running tally of the price.

Dell's site was so easy to use that I mistakenly ordered a $3,407 machine before I could stop myself.

Minutes after I placed my order, I received a confirmation by electronic mail.

I placed a panicky call to the toll-free customer service line — which is plastered all over the site — where a nice man named Troy soothed me.

"Aww, I understand, ma'am. Nn problem, ma'am," he said, advising me to call the sales department the next day to cancel the order.

By the way, orders received on the Web aren't usually processed by Dell until the next day, and credit cards aren't tapped until the goods actually ship, or so said Troy.

NECX

The NECX site was slow but sported a few nice features. (NECX isn't related to NEC Corp.)

Flaws at PC Shopping Planet include disorganization, the lack of a search function and a scarcity of detailed product information

A freshness date at the top of the home page indicated when the information was posted, which is key in a market where prices constantly change.

One truly great feature was the ability to do side-by-side PC comparisons. I picked the options, and then the site generated a chart to show how competing products stack up — right down to minutes of battery life. That's smart shopping.

A downside to NECX's site was all the graphics that demonstrated what various computers look like — they slowed down the site.

Also, hypertext links that were supposed to show product reviews didn't work. I played six rounds of Minesweeper waiting for one review to pop up, only to get a generic error message.

But the ability to comparison-shop saves the site.

PC SHOPPING PLANET

PC Shopping Planet's home page was frustrating. Between lots of exclamation-pointed come-ons for "hot deals" and irritating attempts to coax me to register for special discounts and freebies, finding what I wanted was tough.

Instead of product categories to browse, I was confronted with a nonalphabetized list of vendors and computer model names.

I scanned for a Pentium 133. Being a risk-taker, I clicked on a company I hadn't heard of before: Magitronics.

It turned out I couldn't configure the machine and had to take the memory, hard drive and nther options Shopping Planet offered. That's no good, especially when you're talking about a $3,999 PC.

There was no way to tell whether a docking station existed for this model, so I decided to come at the problem differently — by plugging the words "docking station" in to the site's search engine.

But I couldn't *find* a search facility. I backed up all the way to the home page with no luck. A button called "Information" brought me a list of links that included "How to Order" and "No-hassle Return Policy."

How about a no-hassle search function, for crying out loud?

"Product Specifications" told me how "we have packed our product pages with as much useful information as possible" and said I should call customer service with questions.

Pretty peeved, I bagged out without ordering.

WAL-MART

If Sam Walton had lived to surf the Web, the Wal-Mart founder would have been right proud of this no-nonsense site.

With minimal graphics, the site gave me clean, simple hypertext product categories to explore.

I worked my way through the computer shop and clicked "Notebooks — Pentium." An alphabetical list of 102 links to particular brands and models appeared.

But when I tried to add a PC to my shopping cart, I got a message telling me to fill out a form with my name, address and other personal data. I am the type who likes to walk around with an item before I decide whether to buy. But here I couldn't create a shopping basket without divulging personal stats. I didn't like it, but I did it.

With Dell's speedy and easy-to-use site, it's no wonder the company does $1 million worth of business per day on the Web.

I also couldn't customize my PC. I had to take what Wal-Mart offered, and it wasn't necessarily any cheaper than other stores. And I had trouble figuring out how much I would pay for the docking station and ended up calling customer service. Having to make that call knocked the Wal-Mart site down some, but I still liked its simplicity. □

Domain extension plan moves ahead

By Joanne Taaffe
PARIS

THE INTERNET International Ad Hoc Committee has advanced its plan to extend the Internet domain naming system that would create 28 independent naming registrars and assign seven top-level generic domain names such as .firm and .rec.

The committee's pending "memorandum of understanding" covers the creation of 28 independent naming registrars responsible for assigning the top-level generic domain names designated by the committee in February. The seven new top-level domain names — .firm, .store, .web, .arts, .rec, .info, and .nom — have been added by the committee to the three existing generic top-level domain names — .org, .com and .net.

The three generic domain names are registered exclusively by Network Solutions, Inc. in Herndon, Va., which was awarded the right to dn so by the U.S. National Science Foundation (NSF). When the agreement between the Network Solutions and NSF ends, the committee intends to add .com, .org and .net to its other domain names.

Taaffe writes for the IDG News Service in Paris.

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Access records

CONTINUED FROM PAGE 61

stantly asking me to check on things, and we've used server logs in some of the litigation we've been involved in," Vaccaro said.

Server logs can demonstrate that a client used a company's services even though he claims he didn't receive satisfactory service, said Larry Dietz, a lawyer and computer security analyst at Zona Research, Inc. in Redwood City, Calif.

"Client access to the product would indicate acceptance of the product, and use and acceptance would be a great defense," Dietz said.

Also, a company that keeps a detailed record of access to its information reduces its liability and therefore can reduce the price of its liability insurance, Dietz said.

Other systems can return similar benefits. Traditional client/server systems such as Lotus Notes, for example, let administrators track usage and configure access privileges. But the level of detail administrators can capture from an intranet is unique, according to users.

An administrator can identify patterns of usage by using World Wide Web server log analysis tools to compare multiple requests on multiple logs. Ernst & Young LLP in New York uses a tool called WebTrends from E.G. Software in Portland, Ore.

"We don't do exhaustive analysis of log files. That's not worth it," said John Parkinson, chief technologist at Ernst & Young. "But we do have certain patterns of behavior we look for."

The company could use WebTrends to identify, for example, a pattern in which specific clients downloaded several files of a certain size at certain intervals. Other tools with similar features include WebTrack from Webster Network Strategies, Inc. in Naples, Fla.; Net.Analysis from Net.Genesis Corp. in Cambridge, Mass.; and Market Focus from Interse Corp. in Sunnyvale, Calif.

Of course, server logs can show only that a user accessed information. They prove nothing about what potentially illicit things users do with the information after the download.

That's why information systems departments need to coordinate intranet security with a company's overall security plan, Dietz said.

"The off-line policies and procedures are more important than the technology," he said. □

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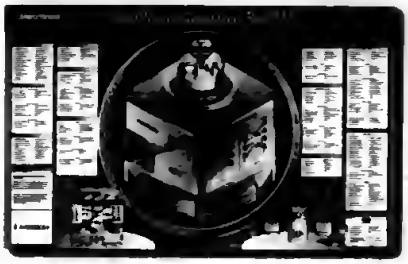

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Jun. 2	Solutions Series. Year 2000: Products (part 2 of 2) Distribution at PC Expo & Comdex Spring/ Windows World	Apr. 18	May 9
Jun. 23	Supplement: Application Development on the Web	May 9	May 30
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COMPUTERWORLD

Internet tools

CONTINUED FROM PAGE 61

The tools can also find information by analyzing Hypertext Markup Language (HTML) code in highly structured pages to collect the data in a field in, for example, the third row, fourth column, of the second table on a page.

The tools can also recognize when a transaction fails and can be programmed to try alternatives.

Analyst Michael Goulde at Patricia Seybold Group in Boston said the tools were designed to solve a thorny problem, and he expects to see more like them.

"If the Web is the world's largest data warehouse, how do you get at it?" Goulde asked. "There's structured and unstructured data, and there's no standard way — there probably never will be a standard way — of getting at this data."

The WebMethods software returns data as Java objects that can be included in server-side Java applications or run as client-side applets. The data can also be automatically displayed in HTML.

The software costs $295 per developer seat, plus a $2,495 unlimited runtime server license.

The OpDisplay software presents data in either HTML format or relational form for inclusion in a database. It supports standard interfaces such as Microsoft Corp.'s Open Database Connectivity specification and ActiveX. Four components are included: A package designed for enterprisewide applications comes with the CenterStage Developer tool, which costs $995 per seat, and the CenterStage Server, which starts at $9,995. Individual versions are also available, priced at less than $300. □

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Firms offer up smart software for Web sites

By Mitch Wagner

TWO COMPANIES recently rolled out products designed to build intelligence into sales-oriented Web sites.

The first product tracks the behavior of World Wide Web browsers to present content customized to users' preferences and lets users search for products or information according to descriptions, rather than specific names.

The other product was designed to help salespeople on the road assemble complex orders using an intranet.

The former capability interests Richard Kramer, manager of information systems at Want Ad Publications, Inc. in Sudbury, Mass. "We had to purchase a lot of capital equipment last year, and we had to put out huge [requests for proposals]," he said. "The vendors could have met our response much more easily if they had technology like this."

But Kramer said he doesn't plan to adopt anything like it for his customers. Want Ad publishes a chain of classified-advertising periodicals throughout New England and also posts ads to the Web.

The tracking software, One-to-one, from BroadVision, Inc. in Los Altos, Calif., lets site administrators build simple descriptions into catalogs.

It already could track the behavior of visitors to a site and suggest future pages, products and services based on that behavior. Now it will let users query for products based on those descriptions. Pricing for the software, which is available now, starts at $60,000. Average pricing is about $150,000.

CONCINITY UPGRADE

Meanwhile, Calico Technology in San Jose, Calif., has shipped a new version of its Concinity software.

It includes a modeling language that allows catalog content authors to attach attributes to objects in a catalog to help determine which products or components are compatible with one another. It was designed to configure complex products out of parts and suggest add-on options. The software was designed primarily for use by travelling salespeople over an intranet. But it also runs on client/server networks, stand-alone servers or Web servers.

Pricing for Concinity ranges from $2,500 per user to $150,000 for unlimited use on a single computer. □

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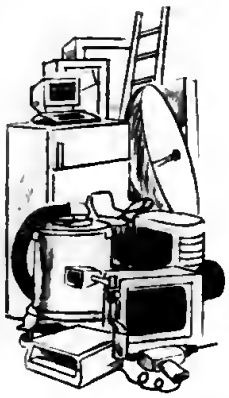

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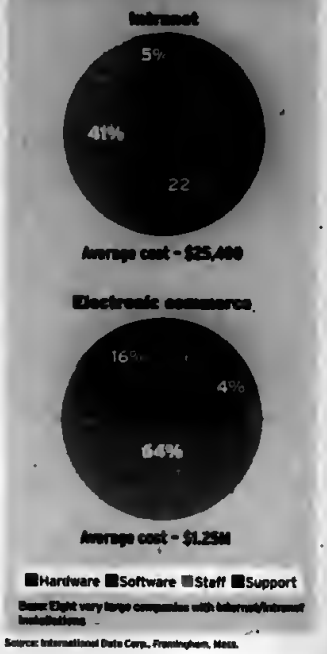
Snapshot

WHERE THE MOOLAH GOES

Breakdown of the cost to support an Internet vs. an electronic-commerce site in 1996



Base: Eight very large companies with Internet/Intranet installations

Source: International Data Corp., Framingham, Mass.

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Internet users slow to adopt electronic commerce

By Kristi Essick
LONDON

ALTHOUGH MOST companies are rushing to sell products over the Internet, users aren't quite as eager to go shopping on the World Wide Web, according to a recent study from market researcher International Data Corp. (IDC).

Consumers aren't getting any more comfortable with purchasing products over the Internet, according to the Winter 1996/1997 Internet User Survey from IDC in Framingham, Mass. Electronic-commerce buying trends across all demographic categories remained the same as those collected in the fall 1996 study.

Nearly two-thirds of respondents said they don't plan to buy products over the Internet, and nearly 75% said they don't plan to buy services over the Internet.

The survey was conducted on IDC's Web site (www.idcresearch.com/) from November 1996 through January 1997. The poll included responses from 1,052 people from 11 countries, 90% of whom were from the U.S.

For electronic commerce to attain the widespread reach that technology companies and product vendors hope for, many improvements must be made to the Internet infrastructure, IDC said.

"As a medium for commerce, the Internet needs significant development in many areas, including enhanced ease of use; improved security and reliability; more plentiful bandwidth; and better integration with existing information technology environments," according to a statement by Gigi Wang, senior vice president of IDC's communications industry research group.

MONEY PREDICTIONS

Predictions that the amount of money spent on electronic commerce will reach into the billions by 2000 are inflated, said another IDC analyst.

"Predictions of imminent, massive Web-based commerce seem wildly over-optimistic," said Ted Julian, a research manager for IDC's Internet research program. "Consistently throughout the survey results, we note that interest in Web-based selling, if not purchasing, has decreased over the past six months."

Additional key findings of the report include the following:

- Women who use the Internet tend to be better educated and higher paid than men who surf the Web.
- The most common modem access speed is quickly moving from 14.4K bit/sec. to 28.8K bit/sec.
- Today's Internet users are much less technically savvy than early users and are therefore less apt to purchase products over the Internet. □

Essick writes for the IDG News Service in London.

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COMPUTERWORLD
The Newsweekly for Information Technology Leaders

SHORT

New Communicator

Netscape Communications Corp. this week will post to its World Wide Web site the third preview release of Communicator, its Internet client suite. New features include S/MIME encryption for sending and receiving encrypted electronic mail; and support for signed objects, which alerts a user before unidentified code runs on a PC. Also included are Auto Admin features, which let information systems managers centrally administer Communicator clients, plug-ins, components, security settings, and the push and pull of content.

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NEW PRODUCTS

ACCESS BEYOND, INC. has announced two remote access servers for Internet service providers.

According to the Gaithersburg, Md., company, the AB-T1240 server has one Ethernet LAN access module, 24 integrated modems and management and remote-access software. The AB-E1300 contains 30 digital modems. Each comes with a chassis that supports hot-swapping of all option cards.

Pricing starts at $11,995.

Access Beyond
www.accessbeyond.com
(301) 921-8600

I-KINETICS, INC. has announced Openjdbc, a multitier Java driver that uses the Internet Inter-Orb Protocol to connect to DataBroker 5.0, a Common Object Request Broker Architecture server for database access.

According to the Burlington, Mass., company, Openjdbc's use of open standards allows access to multiple databases by one user.

Pricing starts at $1,995.

I-Kinetics
(800) 454-6389
www.i-kinetics.com

HITACHI COMPUTER PRODUCTS, INC. has announced ZooWorks Research for Teams, software that automatically generates and manages a shared pool of information gathered from the World Wide Web activities of a group.

According to the Santa Clara, Calif., company, the software works with workgroups of up to 50 members on the Internet and within intranets to retrieve and manage information. It indexes uniform resource locators and full-text content of every Web page that a team member visits, pooling it into a library.

ZooWorks Research costs $795.

Hitachi Computer Products
(408) 986-9770
www.hitachisoft.com

INTEGRATED TECHNOLOGY USA, INC. has announced CompuNet 2000, a PC keyboard telephone with Internet capabilities.

The CompuNet 2000

According to the Teaneck, N.J., company, the phone can be used in conjunction with Internet telephony software to make calls around the world for the price of a local call. Internet phone calls can also be made to regular phone users.

The hardware costs $239.95.

Integrated Technology USA
(201) 837-8000
www.ITI2000.com

WEBMETHODS, INC. has announced a Secure Sockets Layer (SSL) plug-in to allow secure transactions over the World Wide Web.

According to the Fairfax, Va., company, the SSL Plug-in is based on the SSLava Toolkit from Phaos Technology Corp. When used with the WebMethods Web Automation Toolkit, SSL Plug-in allows developers to build applications that access data and service from the Web automatically via bidirectional secure socket communication with SSL-enabled Web servers.

Server run-time licenses with the SSL Plug-in start at $4,995.

WebMethods
(703) 352-8501
www.webMethods.com

DCSI has announced FontF/X, 32-bit OpenGL-based, three-dimensional font-rendering software for adding 3-D visual impact to business presentations and World Wide Web pages.

According to the Boulder, Colo., company, FontF/X is available for Windows 95 and Windows NT 4.0. It costs $79.

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EXECUTIVE TECHNOLOGY SUMMIT '97

May 19 - 21, 1997
The Pointe Hilton Resort at Squaw Peak
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Harvesting Your

As we approach the year 2000, business is being irrevocably changed. Whole industries are being reshaped by the forces of increased customer expectations and dramatically shortened time to market cycles. This raises the question, "How can I increase my yield from my IT investments?"

The fourth annual Executive Technology Summit is being presented by SIM and Computerworld, to offer attendees more insight into the ever changing world of information technology. This unique program includes: keynote presentations, where IT visionaries offer first-hand accounts of technology solutions; technology panels, where CIOs are queried by highly respected industry analysts, consultants and editors; technology provider strategy panels, offering perspectives from sponsoring companies' CEOs or CTOs; and Solution Labs, where leading suppliers share their IT expertise.

Powerful Keynote Sessions

John Cross
British Petroleum

John Singel
Price Waterhouse

Naomi Seligman
Research Board

Joe Rosen
Enterprise Technology Corp.

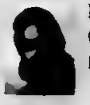
Kicking off ETS '97 is John Cross, General Manager of IT for British Petroleum PLC. Cross discusses the "Transformation of the IT Function at British Petroleum" as they moved from a mainframe VMS environment to client/server. A special Integrator keynote has been added to the program this year, featuring John Singel, Global Information Technology Domain Leader of Price Warehouse. A special strategic measurement keynote has been added to the program and will be given by Joe Rosen, Managing Director, Enterprise Technology Corporation. The closing keynote is provided by Naomi Seligman, Senior Partner of The Research Board, who covers some of the data collected by her exclusive organization.

Technology Provider Strategy Panels

Here is your chance to hear from a senior level IT executive from an ETS sponsor company in a moderated panel format. Corporate strategies and future directions are revealed, as well as answers to questions about new technologies and emerging trends. Hear their stories and learn what you need to know about these companies in order to make beneficial IT investments.

Technology Panels

The following three, 60-minute case-study panels discuss technology applications and implementation, including performance expectations, scope, process and return on investment.



Distributed Computing
Monday, May 19, 1997

Moderated by: Alan Alper
Editor, Magazines Group
Computerworld

The effective use of distributed computing technology raises new challenges for the IT executive. The following issues will be discussed to help you separate promises from reality and to effectively estimate the impact on your resources:

- migration of existing systems
- increased need for object-oriented development
- systems management procedures
- user file management and related fundamental security issues
- adequate hardware and software componentry
- language standards and interoperability

Data Mining and DataWarehousing
Tuesday, May 20, 1997

Moderated by: Alan Paller
Director, Research and Education
Data Warehousing Institute

Many issues plague the IT executive attempting to implement a successful data warehousing or data solution for their enterprise. Here's your opportunity to get the answers to the following questions:

- what kind of infrastructure is necessary to support the amount of data that will be stored and processed?
- do I need a relational database or multi-dimensional database?
- what set of tools will most appropriately support end-user needs?
- should analysis happen on the desktop or on the server and who has what level of access?
- search engine, text retrieval engine and sort processesing options

Doing Business with Internet Technologies
Wednesday, May 21, 1997

Moderated by: Gay Sleninger
Vice President
Giga Information Group

What are the viable solutions, the costs and the expected return from the corporate business perspective when doing business with Internet technologies? This is your opportunity to discuss solutions on:

- choice of architecture
- security and standards issues
- capitalization of the Internet for intranet purposes
- infrastructure support issues
- planning for effective use of the Internet beyond the year 2000

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- ❑ Check

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It is important to us that you enjoy the Executive Technology Summit. If, due to a physical challenge, you have any special needs, accommodations or requirements, please let us know in the space provided below and we will do our best to accommodate your needs.

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Signature | Date

Card Number | Expiration Date

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Three easy ways to register...

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2. By Phone (credit card only): Contact Flying Colors, (800) 464-0061;
3. By Fax (credit card only): Fax form to (312) 245-1081.

No refunds will be issued after May 9, 1997

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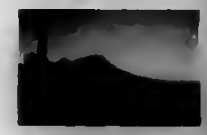
SAS Institute's Summit Golf Tournament



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Corporate Strategies

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Briefs

INFORMATION NEEDS

One-third of the CEOs surveyed admit they spend too little time monitoring their company's key operating information. The types of information CEOs say they look at on a daily or weekly basis include the following:

Total company sales	76
Cash flow	74
Accounts receivable	65

Base: 438 CEOs at U.S. companies
Source: Coopers & Lybrand, New York

By Julia King
NEW YORK

ALL EYES IN the online publishing world have been glued to *The Wall Street Journal* Interactive Edition ever since last fall, when the World Wide Web-based daily newspaper began charging an annual fee of $49 for access.

What competitors want to learn is whether readers are willing to pay for online subscriptions and renew them year after year.

Ken Ficara says he believes he already knows the answers.

What online *Journal* readers will pay for is impeccably accurate and up-to-the-minute business information, Ficara says. Glitzy graphics and high-tech gimmickry, on the other hand, don't sell, primarily because they waste business readers' precious time.

Ficara, 31, is *The Wall Street Journal* Interactive Edition's webmaster. But at heart, he is a newshound, a former daily newspaper reporter and college editor known to bribe press operators to meet deadlines. In exchange for dinner, he would get the pressmen to run his job on time, even though he had thrown the print schedule off-track by chasing a late-breaking story.

News continues to supersede all else for Ficara, who functions as a roving and highly knowledgeable ambassador between the editorial and technical sides of the house. If the Dow Jones Industrial Average were to break 8,000 or IBM were bought out by a Japanese conglomerate, don't expect Ficara to be sweating the small stuff, such as broken links between

Ficara, page 81

E-MAIL MONITORING

Software to check stockbrokers for ethical lapses

By Sharon Machlis

THREE SOFTWARE companies are jointly developing an electronic-mail monitoring package to help financial firms guard against illegal or unethical messages by brokers.

Brokerage houses are required to closely supervise employees to prevent them from improperly hyping a stock or guaranteeing profits in speculative investments. Although procedures are well-established for tracking letters and telephone calls, financial regulators are debating how to handle E-mail.

Officials at Sequel Technology Corp. in Bellevue, Wash.; Integralis, Inc. in Kirkland, Wash.; and SRA International, Inc. in Arlington, Va., said they are working on software that will in-

E-mail, page 81

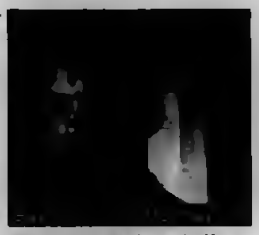
Online brokers drive industry changes

By Thomas Hoffman

STRADE GROUP, INC. each day adds 500 customers who want to buy and sell stocks over the Internet.

But contrary to popular opinion, ETrade's $10 million daily asset gains don't come at the expense of full-service brokers such as Merrill Lynch & Co. — firms that have been noticeably absent from the online trading frenzy.

Instead, cyberbrokerages such as ETrade in Palo Alto, Calif., and Lombard Brokerage, Inc. in San Francisco are gobbling up technically proficient investors who had historically relied on discount brokers for low-cost trade executions. Cambridge, Mass.-based Forrester Research, Inc. expects growth in online trading to swell from 1.5 million accounts today to 10 million by 2001.



Brokerages that don't offer Internet trading "are playing a dangerous game"

ETrade and Lombard "are the Charles Schwabs and Quick & Reillys of the '90s," said Larry Tabb, a technology analyst at The Tower Group, a Newton, Mass.-based financial services and technology consultancy.

Companies such as ETrade have contributed to an evolution

Online brokers, page 79

Imaging systems can be a hard sell

▸ *Skeptics question cost, customer service*

By Barb Cole-Gomolski

EVEN AFTER showing how an imaging system could vastly reduce the time it takes to process birth, death and divorce records, information systems staffers at the Georgia Department of Vital Records faced a tough crowd in its project oversight committee.

And as it turned out, a weakness in the department's physical plant — rather than a strength of the technology — finally sold the system.

In the decision-making process, Mike Lavoie, director of vital records and the self-proclaimed champion of the system, said he tried several tacks.

He showed oversight committee members that the agency would no longer have to deal

Imaging, page 78

Imaging systems can be a hard sell

CONTINUED FROM PAGE 77

with deteriorating paper records and that it could greatly improve its customer service.

He circulated a sample digitized document to senior data processing executives. He outlined the business processes involved in tracking a document and retrieving it for residents through either walk-in or mail requests.

At first, nothing worked.

Finally, Lavoie said, the tide turned in favor of the imaging system just before the department moved its tons of paper documents to a new building. "The floor [at the new building] was not sufficient to support the boxes of paper," Lavoie explained.

A JAUNDICED EYE

Observers said Lavoie's experience is cautionary. Analysts said the Georgia Department of Vital Records is among a growing group of organizations that are taking a skeptical view of new technology.

"There is a groundswell of companies that are saying no to new technology without formal analysis," said Scott McCready, an analyst at International Data Corp. in Framingham, Mass. Imaging is particularly vulnerable to the IS budgetary microscope, McCready said, because it often costs between $5,000 and $10,000 per seat.

Mike Lavoie

Georgia Dept. of Vital Records gained fraud detection with imaging system

An additional obstacle blocking the vital records office project was that another Georgia state agency had tried imaging in the past and been burned, so some on the oversight committee were a bit gun-shy, according to Scott Ryser. He is executive director of systems development at Mantech Design and Development Corp., the Columbia, Md.-based systems integrator that helped design and implement the imaging system for the vital records office.

The Atlanta-based state agency recently went live with a new system, based on Eastman Software, Inc.'s imaging system. It will be used to issue certified copies of records to the public. State officials declined to reveal the cost of the project.

A second phase will allow remote county offices to access the imaging system via the state's wide-area network.

In the case of the Georgia agency, money really wasn't the issue, because the funds were available. It was more a case of proving that the imaging system would improve customer service and work as advertised.

Ryser said companies get stung when they "latch on to the hype" and add imaging without looking closely at the business processes that will be affected. "Half the benefit [of imaging] comes in reworking your business processes," he said.

MOVING FASTER

Lavoie estimated that the Georgia agency will process about 5,000 documents in one day, an amount that would have taken several weeks with the old paper and microfilm system. It will take about three minutes to receive a certified copy of a record when someone walks into the agency's office instead of a half-hour. Similarly, a mail request for a record will take a couple of days, down from three to four weeks.

In addition to the improved customer service, the department gained improved fraud detection, Lavoie said.

The imaging system, which runs on two Hewlett-Packard Co. Unix servers and about 25 Pentium-based workstations, helps the agency prevent someone from requesting a birth certificate that doesn't belong to him and alerts the agency if a particular record is requested frequently. □

SHORT

Airline tracks catering

British Airways is installing new catering supply systems that track supplies to individual routes, flights and passenger preferences. The project, based on System ESS from Industri-Matematik International Corp. in Tarrytown, N.Y., is expected to save the airline $4.75 million to $8 million annually by eliminating waste and reducing inventory stockpiles.

Built by engineers.

HEWLETT PACKARD

Online brokers drive industry changes

CONTINUED FROM PAGE 77

of the investment community. Discount brokers such as Charles Schwab & Co. are being forced to offer more research and value-added services just as their full-service competitors do. "As their portfolios become larger, people have less time to make investment decisions and have to rely more on financial advisers to make those decisions for them," Tabb added.

Firms that provide investment research, market data and other services "will be the core of the market," said Art Shaw, senior vice president of electronic brokerage at San Francisco-based Charles Schwab, which began offering Internet-based stock trading through its e.Schwab online service last May. Customers can trade up to 1,000 shares using e.Schwab for a $29.95 fee or a 20% discount off Schwab's standard commissions and transaction fees for non-e.Schwab customers, Shaw said.

Lombard, which has offered World Wide Web-based trading since early last year for as little as $14.95 per order, also has expanded its online market research.

In addition to Lombard broker recommendations on stocks and forecasts, customers also have access to research from Thomson Financial Services and Zack's Investment Research, said John MacIlwaine, president of Bay One Technologies Group, the information technology arm of Lombard.

MacIlwaine said full-service brokerages such as Smith Barney Shearson, Inc. that offer Web access to research but don't offer online trading "are playing a dangerous game. It's like leading [customers] to the river but not allowing them to drink," he said.

Merrill Lynch customers will be allowed to "drink" by early next year — as long as a Merrill Lynch investment adviser holds the straw for them. The New York brokerage, which launched Merrill Lynch Online in September, plans to offer customers Web-based trading in the first quarter of next year, with the provision that they channel their trades through a Merrill Lynch investment adviser, said Randal Langdon, director of interactive sales technologies at Merrill Lynch in Princeton, N.J.

The "wisdom" that Merrill financial advisers bring to clients "is fundamentally different than Internet brokers, who are interested in opportunistic trading."
– Randal Langdon, Merrill Lynch

Langdon said Merrill's customers were more interested in obtaining Web access to delayed quotes and market research than in receiving Internet stock trading capabilities. Merrill's online transaction fees will "be in line" with the commission rates the company charges now, he said. Analysts placed those costs at between $150 and $250 per trade, including Buy/Sell and other investment advice.

"The trade is only a small part of the transaction that we put in place," Langdon said. The "wisdom" that Merrill financial advisers bring to clients "is fundamentally different than Internet brokers, who are interested in opportunistic trading," he said.

Full-service brokerages such as Merrill Lynch have been slow to adopt Internet stock trading "because their commissions are typically five to six times higher than discount brokers'," said Octavio Marenzi, research director at Meridien Research, Inc., a financial services IT consultancy in Needham, Mass.

Marenzi said Prudential Securities, Inc. and Fidelity Investment Co. also are weighing online trading opportunities. Full-service brokerages "don't want to get shut out" from growth opportunities in Internet trading, he said. □

Brokers mentioned in this story:

- Merrill Lynch www.ml.com
- ETrade Group www.etrade.com
- Lombard Brokerage www.lombard.com
- Charles Schwab www.schwab.com
- Quick & Reilly www.quick-reilly.com

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E-MAIL SURVEILLANCE PARTNERS

Company	Product
Integralis Kirkland, Wash.	MIMESweeper E-mail content screening
Sequel Technology Bellevue, Wash.	Net Access Manager monitoring and reporting
SRA International Arlington, Va.	Natural language comprehension and analysis

E-mail software to check brokers' mail messages

CONTINUED FROM PAGE 77

clude monitoring, logging and natural-language understanding to scan E-mail for improper communications in the financial industry. A final product is slated for release in June.

The system will use Sequel's Net Access Managing monitoring and reporting software and Integralis' MIMEsweeper content-management system to scan messages for red-flag concepts or phrases. Mail would then be screened a second time using SRA's natural-language analysis to dig for inappropriate hype or pressure.

E-MAIL MONITORING

SOME DOUBTS

Kenneth Spirer, assistant general counsel and first vice president at Merrill Lynch & Co., said he considers it "encouraging" that software companies are trying to move into the E-mail monitoring market with more sophisticated offerings. But he questioned whether any package could find the subtle ways that securities rules are broken. Few sophisticated brokers would write something as blatant as a "guaranteed moneymaker," he said.

"It would be helpful if it works ... but it will not be a quick fix," said Spirer, who chairs the Securities Industry Association's technology regulatory subcommittee. "This could help a firm argue [to regulators] that it's conducting its supervision in a 'reasonable' way, but by itself, it doesn't get you across the goal line." Such a tool could be used in conjunction with more conventional monitoring, such as manually reviewing a portion of all messages.

John Stark, special counsel for Internet programs at the Securities and Exchange Commission (SEC) in Washington, agreed. "A tool like that might be useful" as part of a broader effort to ensure compliance, he said.

Other efforts are under way by high-tech suppliers eager to tap the financial community's need to supervise massive volumes of E-mail, since any company that sells stocks or bonds is subject to SEC monitoring requirements. Aegis Star Corp. in Palo Alto, Calif., for example, offers a data warehouse storage service so brokers can store all E-mail communications for retrieval and monitoring.

Also, the National Association of Securities Dealers Regulation, Inc. in New York is developing a search engine in an effort to scan the World Wide Web for claims that might be part of a scam to inflate or trash a stock price. □

SHORT

Unisys Team2000

Unisys Corp. in Blue Bell, Pa., has introduced a year 2000 program for its airline customers to prepare their mission-critical applications for the next millennium. The Unisys Team2000 program targets applications ranging from passenger reservations and freight management systems to payroll systems. Platform support includes mainframe, client/server, desktop environments and global networks.

Ficara puts Journal on Web

CONTINUED FROM PAGE 77

Hypertext Markup Language (HTML) pages.

"The most important thing is to get the update out," Ficara says. That means posting the story online even if it is supposed to link to a stock options page and the options tables aren't ready.

"We're not in the business of being a cool Web site, but in being the best business news publication on the Web," he says.

But make no mistake: Ficara, a New York native and amateur harmonica player with a passion for blues music, is no technology slouch. In addition to a journalism degree from Brooklyn College, he holds a degree in computer science from Rutgers University.

EARLY BEGINNINGS

In 1995, Ficara built the online editing system that the *Journal*'s parent company, Dow Jones & Co., first used to publish online financial data, including the *Journal*'s Money and Investing section as part of a subscription-based dial-up service.

"For the first year, I was the only one who could fix the editing system, because I was the only person who understood how it worked," Ficara recalls. "I didn't used to have a life then. It was a 24-hour operation, and two to three nights a week, I used to get calls that something was broken."

Now, as webmaster of the year-old *Wall Street Journal* Interactive Edition, one of Ficara's key functions is that of a technical interpreter.

Launched last April, the interactive edition carries all the news and information featured in the print version of the newspaper. In addition, paying subscribers get access to background reports on companies, an archive of news articles and personalized stock portfolios, all of which are produced by a staff of about 35 editors.

Until last November, readers had free access to The Wall Street Journal Interactive Edition, which had more than 650,000 registered users. Now, subscriptions cost $49 per year – $29 for those who also subscribe to the print edition – and readership has dropped to about 80,000.

"His vital role is as the liaison between a bunch of editors with a bunch of ideas and the technical people who develop the applications and systems. Ken helps them understand how an editor thinks and works and what we think is important," says Neil Budde, editor of the interactive edition and Ficara's boss.

Ficara, for example, had developers include an override mechanism in the group's online publishing system. With it, editors can publish breaking news or post updates even though they break links between HTML pages.

"My peers are the people working in the newsroom more so than programmers," Ficara says.

That news-oriented philosophy is one of the things that has made analyst Bill Bass a self-described fan of the Interactive Edition. It is also an approach other electronic news publications would do well to follow, says Bass, who works at Forrester Research, Inc. in Cambridge, Mass.

"If you're the *Batman Forever* site, sure, you got to have some video in there. But with *The Wall Street Journal*, you're there for the news, and you want to get in and get out," Bass says.

"People don't go online and read the *Journal* to have an experience," Bass adds. " They go for information, and the people at *The Wall Street Journal* have figured that out." □

European Commission launches effort to create jobs through technology projects

By Elizabeth de Bony
BRUSSELS

THE EUROPEAN COMMISSION has launched eight pilot projects designed to help local authorities use communications technologies to create jobs, the commission said in a statement issued last week.

The funding of up to $300,000 per project will help local authorities such as the Athens City Council and the Welsh Development Agency analyze communications technologies in their area.

On the basis of the analyses, European Commission officials want local authorities to make sound policy decisions regarding future investments in communications technologies.

"One of the key requirements for funding was that the local authorities must hook up with local partners such as software providers and telecom operators in carrying out the project," said Alan Zoric, the European Commission official in charge of the projects.

LINKING APPLICATIONS

Although each of the local authorities will carry out its own analysis and draft its own policies, the commission hopes that they will include labor market applications such as linking job offers to job applications and how to set up intraenterprise communications networks, Zoric said.

The projects, which will last from 18 to 24 months, reflect continuing concern that the European Union is lagging behind its major competitors in integrating information services into everyday life. The European officials are concerned that this could have serious negative consequences for future employment.

The eight pilot projects are part of 22 projects set up and managed jointly by the commission's Directorates General of Employment and Social Affairs, Telecommunications, Information market and Research and Regional Policy. □

De Bony writes for the IDG News Service's Brussels bureau.

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Managing

The price of people
Don't ignore people amid the talk of Total Ownership Cost, Paul Strassmann says. Page 89

Many companies are practicing 'customer intimacy' and using the Web to do it. For IS, that means learning new skill sets and selling the technology to users.

UP CLOSE AND PERSONAL

By Bruce Hoard

REGAN DUNNICK

LAST YEAR, when the L'eggs pantyhose people reviewed some of the customer comments left in the forum section of their World Wide Web site, they discovered the popularity of pantyhose — among men. L'eggs officials were surprised to learn that this select group likes the comfort and warmth of these traditionally female-only products.

Until recently, it would have been difficult for even companies that practice "customer intimacy" — slavishly catering to customers by offering them unprecedented attention based on personal data — to have discovered this new market segment. But the corporate craze for customer service is launching a proliferation of Web-based systems that offer self-service to customers and customer information to companies.

Technically, the challenge involves marrying legacy mainframe and client/server systems with the Internet. Key issues include ensuring security, choosing among rapidly evolving development tools and being willing to go where few programmers have gone before.

On the cultural side, change, as always, looms as an impediment. Legacy skill sets must be overhauled to accommodate cutting-edge technologies. Systems implementers must develop a thorough understanding of critical company workflows, and information systems staffers must sell these new

Up close, page 84

UP CLOSE AND PERSONAL

CONTINUED FROM PAGE 83

systems internally to apathetic — or sometimes antipathetic — end users.

Two companies that have bridged the technical and cultural gaps are Office Depot in Delray Beach, Fla., and Cable & Wireless Internet Exchange (CWIX) in Vienna, Va.

OVERCOMING OBSTACLES

Web-based customer intimacy pioneers Office Depot and MIT in Cambridge, Mass., walked the bleeding edge in 1995 when they assembled an open purchasing system that lets MIT faculty and administration order products from Office Depot and two other suppliers. MIT buyers log on to their intranet web site, browse and order from an electronic catalog and pay via special American Express cards. The college gets "contract pricing" — which Office Depot says is often better than store pricing — and the item or items are delivered the next day.

Despite the lack of security standards and proven Internet technology, a team that included David Miller, manager of applications development at Office Depot, assembled a successful system in just six months. To do so, the team had to overcome difficulties in dealing with MIT's legacy AS/400 AIX system and the immaturity of available security technology.

"There were a lot of challenges," Miller says. "There are a lot of standards starting to be used now that were not available then."

One emerging security standard available was MIT's Kerberos, which provides a secure mechanism for verifying the identities of electronic-mail users. But that early version of Kerberos was difficult to implement and required repeated testing with different browsers and implementations.

Miller says implementing the browser-based interface was a breeze by comparison. Even though automated tools weren't available, manually coding Hypertext Markup Language is relatively easy, he says. But it wasn't so easy to deal with the C-based Common Gateway Interface layer running on Office Depot's AS/400. Miller says this is because Office Depot was one of the first companies to write socket code C programming on the AS/400. That problem was alleviated when the company ported the application from C to Microsoft Corp.'s Visual Basic so it could run on Windows NT.

Office Depot's service cost per order dropped by as much as half with this system because staffers aren't required to research product availability or take orders. Office Depot saves more money by eliminating fax orders, which require staffers to interpret and re-enter them — sometimes erroneously. "All around, it's much, much cheaper for us to take orders this way," Miller says.

The Internet made the system work, Miller says. The universal compatibility the browser approach provided created a system that works with the "dozens and dozens" of operating systems that MIT runs, he says.

INVITING CUSTOMERS

Companies such as London-based Cable & Wireless PLC, which provides telecommunications products and services to U.S. businesses, rely on outside expertise. Its subsidiary, CWIX, last month rolled out a Web-based, cradle-to-grave, customer self-service system.

By contacting the CWIX Web site (www.cwix.net), customers can obtain price quotes, order services, access real-time reports on operations activities and create trouble tickets — all, if they choose, without having to talk to a person.

That's accomplished through Cwintra, CWIX's business management platform. Cwintra isn't available to the general public — only CWIX customers can access it. Cwintra allows access to the management features that make CWIX customer-intimate.

For example, customers have access to multiple proprietary systems. One is the trouble-ticket system Cable & Wireless uses to manage its network faults. Customers can access the system to view — in real time — their particular fault reports.

Beyond that, they can request updates or escalations of those reports to a higher level of management if they feel the problem isn't being resolved properly.

"More importantly," says CWIX operations director Patrick Murray, "customers can converse, real-time, over the Internet, with the technician that's working on that fault report. That gives them more information so they can more quickly solve the problem."

"That approach gives customers access into our internal management systems over the Web," Murray says. "And that is a demonstrable commitment on the part of Cable & Wireless."

Kevin Dugan, a senior partner at systems integrator and consultancy NetMaker Services in Sterling, Va., worked for 10 months with Cable & Wireless on CWIX/Cwintra. They built 80% of the system from off-the-shelf products. The other 20% of the products included customized "glue logic" — applications and code written to provide consistent administration and security capabilities.

The biggest technological challenge was developing the system at a time when Internet/Web products required were in a state of rapid development flux. Dugan cites Java as an example. "It is robust but not mature in terms of standards, capabilities, performance and product support," he says.

UNCONVENTIONAL ROLES

Although understanding state-of-the-art technology in Web-based customer-intimate systems is required, it's also necessary to understand how the systems may affect the overall business mission. That can force some information technology personnel into roles they don't relish.

One, Dugan says, is understanding how workflow processes combine to create the total business and how customers can benefit from them. "IT needs to go from application development to include the entire workflow of the business," he says.

IT also has to sell the system to end users. "As horrible as it is, and as ill-trained as a lot of IS groups are to deal with this, they wind up dealing with it anyway," Dugan says. "So you really want to recognize that up front and find people with the right skill sets."

This wasn't a problem with CWIX, he says, because it was created as a new division. Incoming IS staff were enthusiastic about its future, Dugan says.

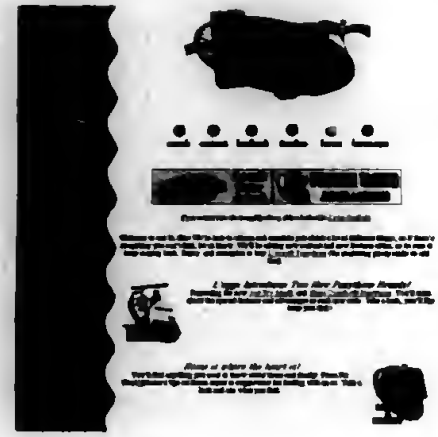
Jim Cook, vice president of CSC Index, Inc. in New York says, "Most IS departments love new technology."

Michael Packer, executive vice president of technology systems and operations at publisher Simon and Schuster in Upper Saddle River, N.J., adds, "Any developer worth his salt is learning the new stuff because it's fun, and that's what keeps people excited about their jobs."

Packer is finishing a Web-based system that lets his company's customers do everything automatically — from ordering books to tracking the size of the container they're shipped in. He has the following advice for those who would follow in his steps:

"Remember, all the old mental disciplines — planning, capacity, performance tuning, test planning, security management — still exist. So make sure that the people planning and executing the project are not trying to put a quick Internet hack on top of legacy systems. It has to be managed, run and delivered as a mission-critical operation." □

Hoard is a freelance writer in Groton, Mass.



3 WAYS TO CUSTOMER INTIMACY

Based on the notion that customer service is king, the customer intimacy model can be broken into three approaches:

- **CONVENIENCE:** This involves making it extremely easy for customers to do business with a company through proximity and accessibility.
- **KNOWLEDGE:** A company can learn the customer's preferences and act on them, as L'eggs used its Web page (at left) to find a new market for pantyhose. Another example would be a supermarket that issues a card to a customer and uses the card to track the customer's purchases to learn what he or she tends to buy. It uses that knowledge to print out — at the cash register — coupons the customer can use the next time he or she comes to the store.
- **OPENNESS:** The customer can be intimate with the company, which allows the customer to access a company's database to find information easily.

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ROBERT NEUBECKER

Dear ex-boss:

We asked for it, and boy, did we get it! IS professionals sound off at their former managers.

The Feb. 24 issue of *Computerworld* published a front-page report — based on our own survey — that detailed the reasons information systems professionals accept new job offers or decide to stay put. Dissatisfaction with the boss was cited as a top reason for leaving.

So, hoping to edify those of you in IS management, we asked readers to tell off their former bosses in a letter. Our readers didn't disappoint. Below are some of their letters, edited for the sake of brevity and to avoid personal embarrassment. If any of this hits close to home, we respectfully suggest you repent your managerial ways before your department resembles a revolving door.

Learning experience

Dear Ex-Boss,

You promised me the company would reimburse me for my training classes and pay for the certification tests. When I submitted the expenses to you, you refused to cut the checks. I finally got through your avoidance tactics, and you did come through with the checks. After collecting them, I promptly quit.

By the way, you overpaid me. I guess I learned my ethics from the best.

You're gone – life's great

Dear Old Boss,

I will long remember the going-away party we had for you — *after* you left. We thought you'd never go. The only thing you seemed to care about was schmoozing your own boss and doing the minimum to keep the customer from firing us. Well, it worked for a while. We never understood what kept your boss from firing you, but she thought you were great.

But the customer hated you. Maybe it was the way you talked down to your customer counterparts. Maybe it was the way you were late for every meeting with them. Maybe it was the way you gave them orders and ultimatums like you were the boss instead of them.

You never showed any interest in the activities of your staff — just tried to put your face in the right place at the right time. Your idea of correcting employees was to publicly humiliate them. You were late for every meeting you attended.

You managed to anger just about everyone except your own boss, in a job where you should have been forging strong alliances and earning credibility.

No one was sorry to see you go.

Thanks for listening – not!

Dear El Bosso Supremo,

Thank you for hiring me to hack code for you over the last year. I've learned a lot. Our customers? Well, if they really wanted us to complete the system, they would have demanded results. So there's no blame to distribute, is there? But gee, if you had only listened to any of us when we discussed and advised and pleaded with you to let us try to compile the code before the delivery date, maybe we could have completed the system and still been in business. Well, that's water over the dam now. So thanks again, and see you downstream.

Rules to work by

Dear Ex-Boss,

Here are some rules that would make a successful IS department:

1. If you want good programmers, you have to pay for them.

2. When you lose good programmers, you probably should replace them.

3. You can't expect reliable information from a system that was poorly designed in the first place and patched by a group of gossiping bozos who pretend to be programmers in their spare time.

4. Three days of sick time per year is incredibly absurd.

5. Technical education is critically important! No matter what the people in finance tell you.

6. If you can't trust your IS people to work from home, you may as well give it up and go sell hot dogs on the beach.

7. Communication and planning with the IS department are vitally important — no matter what the people in sales tell you.

8. Any programmer who would put his or her heart and soul into a project to make it conform to a set of ridiculous rules and regulations and maintain data integrity at the same time (and jump through flaming hoops, I might add . . .) is worth keeping at any price.

Blindness at the top

(Editor's note: This letter was directed at the writer's current bosses.)

Dear Bosses,

When I came to work for you over a year ago, I took a large cut in pay and a demotion. I did so because I saw great promise in your vision, backed up by a great product. I also expected — and was promised — that I would earn back my cut in salary and my title.

Over the last year, I have come to realize many things, not the least of which is that neither you nor your partner has the slightest idea of how to run a business. Nor do either of you have any management skills. And while you are both genuinely nice people, neither of you can deal with confrontation. As a result, problems are not addressed and therefore not resolved.

What is sad is that the one thing you did right — hire quality people — is offset by the fact that you don't listen to any of them. You are so afraid of losing control that those of us who could help you are tired of making suggestions that are not followed through on or that are simply ignored. I will not be making any more suggestions on your behalf.

The biggest thing missing from this organization is leadership. Neither of you are leaders, and the fact that you fight does not exactly instill confidence in the rest of us. At least you could agree to disagree and find some compromise. □

Care to vent? **Need to get something off your chest to a former boss? Send a letter via electronic mail to *robert_scheier@cw.com*. We'll keep your name and that of your former boss secret.**

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New From
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PEOP THE UNTOLD PART OF THE TOTAL COST STORY

The battlefield of Microsoft vs. Sun, IBM, Novell, Netscape and Oracle has been redefined in terms of the companies' Total Ownership Cost (TOC) claims.

The missiles in this battle are press releases and consultants' estimates of the TOC of network computers, network personal computers and personal computers.

THE TOC CLAIMS

The basis for the widely quoted estimates of TOC remains shrouded in mystery. Granted, everyone includes the costs of equipment and operating system software. But those numbers aren't decisive because they can account for as little as 16% of a TOC.

The various estimates don't explain what else is included. For instance, the "Cost of End-User Operations," which makes up 56% of Gartner Group's TOC, doesn't reveal how much of that is for unplanned downtime, how long it takes to recover from system crashes, time lost in recovering data, the negative revenue impact, how that affects customers and how much time is wasted before someone calls the help desk.

Instead, one finds vague references to "futz" factors. Yet, blaming futzing has little meaning in the absence of explaining who, when, why and how it happens. There's no reason to believe any of that would diminish with a network computer or a NetPC.

Consequently, IS managers are in a quandary. How can they reconcile Gartner's estimate of $9,784, Zona Research's $3,679, Forrester Research's $2,680 and Entext's Information Services' $1,500? How can one believe pronouncements from Oracle that its Network Computer would have "costs equal to that of a TV"? How can anyone accept that Microsoft can field PCs that have "zero administration costs"?

There's a simple answer: You can't reconcile any of the conflicting claims. In the absence of adequate disclosures about what makes up the various cost components, any comparisons of TOCs are guesses. No one is itemizing the verifiable costs of what matters the most: the people who try to use a network computer in their jobs.

THE BUSINESS VIEW

The total ownership cost depends on what one counts. Just consider that an equipment purchase of $3,000, amortized over four years and operating for 52 five-day weeks, would cost 36 cents per hour. A typical information worker earning $40,000 per year would cost at least $40 per hour.

The biggest contributors to idling workers aren't failures of semiconductors or disk errors. When work stops, it's predominantly a reflection of systems management practices, software reliability and user behavior. Identical networks that have identical equipment configurations will experience widely different failure characteristics, depending on the quality of network management and the capabilities of the people.

I'm on the board of directors of a network management company that operates client/server networks for a fixed fee per client. I obtained the following listing of customer help desk calls for a typical time period:

- Ninety-eight calls were made primarily because the PC users didn't know what to do. I doubt that swapping computers would overcome such a lack of employee training.
- Ninety-four calls reported that the printer didn't work. That's not anything that a downloadable Java applet or a diskless computer could cure.
- There were 43 incidents of failed log-on attempts. Only improved administrative practices and reduced employee turnover could remedy that.
- In 40 instances, somebody kicked or loosened the connecting cables. I have yet to hear an argument that lower-cost computer equipment will simplify the ever-present cabling hazards.
- Only 84 calls conceivably could have been fixed by choosing a more robust and reliable client/server configuration, such as eliminating operating system crashes (31 incidents for Windows 95), automating resolution of error messages (28 incidents) and resolving NT 3.51 Pentium server downtime (25 incidents).

The above network is exceptionally well-managed, with a competitive outsourcing price per seat of less than $3,000 per year. Even after applying superior administration and automated diagnostic aids, 77% of the cost of ownership was largely attributable to human errors that were only vaguely related to choosing different equipment.

THE SIGNIFICANCE

Computer executives shouldn't believe that mere changes in network configuration will reduce their TOC. Those responsible for justifying IS spending would be well-advised to examine not only the technology expenses that show up in their IS budgets but also the personnel and business consequences if computer-aided people don't do what they're supposed to do.

As for Microsoft, Sun, Oracle and a long list of consultants, IS managers should be aware that the public relations missile barrages are mostly vapor trails. Until verifiable operating results become available about the ability of employees to complete their work efficiently, one should suspend judgment about any expected savings from a proposition that doesn't recognize that humans will always cost more than computers. □

The topic of this column is addressed in an upcoming book by Paul Strassmann (www.strassmann.com) and Tom Pisello, The Mythical Personal Computer: The Real Ownership Costs of Personal Computing *(The Information Economics Press).*

A warning to Web app developers

f.y.i.

Developing applications for the World Wide Web is dramatically different from creating client/server applications, Gartner Group, Inc. analysts warn. They say developers who don't recognize the new realities of Web development will end up creating a new generation of legacy applications that are as expensive and hard to maintain as today's mainframe systems.

The key difference, Gartner research director Richard Hunter says, is that Web applications will be seen by a far wider audience than internal, client/server systems, and that audience will expect more creative content. That's especially true when it comes to sites designed to attract the casual Web browser to a company's site, Hunter told a recent Gartner conference on application development.

"If your audience is anything but internal [users]," Hunter said, "you need marketing people on your team" to help tailor your firm's message. Making Web content attractive also will require help from artists, musicians and other creative types with whom IS isn't used to working, he said. Hunter also warned that "content authoring costs will exceed technical maintenance costs by a wide margin" through the turn of the century.

Such concerns are making some IS managers reconsider their ambitious Web plans. Mark Hatch, director of electronic marketing at office products supplier Avery Dennison Corp. in Diamond Bar, Calif., is "fielding budget-related questions from senior managers" wondering why the firm's Web site costs as much to maintain each year as it cost to set up. As a result, "We have scaled back . . . the frequency with which we'll do major site revisions," Hatch says.

— Robert L. Scheier

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VISUAL BASIC TAKES A STEP UP

REVIEW ▸

Visual Basic 5.0, Enterprise Edition

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PROS
Faster compiler and ActiveX support

CONS
Somewhat more limited than C++

By Howard Millman

With its recent release of Visual Basic 5.0, Microsoft Corp. has significantly elevated the capabilities of its development system to give in-house developers a nimbler compiler, easier code debugging and faster ways to build World Wide Web-centric applications.

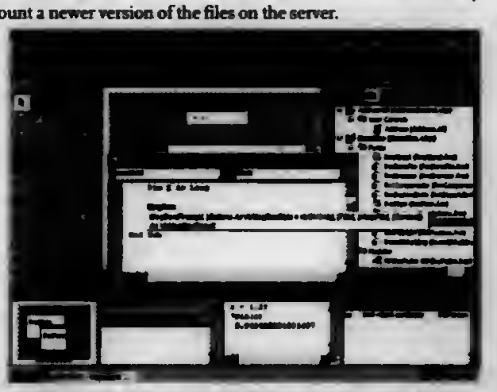
Chief among the new features is support for ActiveX technology, which lets developers build reusable objects for use on intranets and the Internet. Sure to appeal to developers and cost-conscious managers, reusable code can reduce the costs of network-based application development and long-term maintenance. Intranet administrators also will benefit, because Visual Basic 5.0's ActiveX-enabled documents support centralized administration. For example, ActiveX's server-centric files will run in a client-side Web browser and automatically update when administrators mount a newer version of the files on the server.

Being curious about the available options for adding ActiveX technology to enhance existing files, I tested Visual Basic 5.0's new Active Document Migration Wizard. It consistently and transparently converted Visual Basic 4.0 (and Visual Basic 5.0) files into Active Documents in a matter of minutes.

To leverage your investment in ActiveX controls, you can reuse them in all environments that support ActiveX controls and component technology, including Microsoft's Visual C++, Borland International, Inc.'s Delphi and Powersoft's PowerBuilder applications.

A collection of other wizards and templates can simplify application building by providing automated assistance in everything from creating individual forms and screens on up. Lack of scalability, a

Visual Basic, page 93



Visual Basic 5.0's improved performance, team support, scalability and ActiveX technology, plus its leading-edge gadgets such as IntelliSense, add to its credibility as an enterprise-class application environment

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(d) Unix (h) NeXTstep

App. Dev.Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Intranet Products ❑ Yes ❑ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)

(a) ❑ Internet software
(b) ❑ Internet browsers
(c) ❑ Web authoring/development tools

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❑ Yes ❑ No

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VISUAL BASIC TAKES A STEP UP

CONTINUED FROM PAGE 91

complaint often lodged against Visual Basic, recedes further into the distance with this release. For example, Visual Basic 5.0 supports the Distributed Component Object Model and three-tier partitioning. Multilevel partitioning lets developers separate an application's business logic from its stored procedures, a productive element to enable and manage scalability.

Visual Basic 5.0 offers other elements required to build enterprise-class applications. For instance, it includes a SQL stored procedures debugger. A note of caution, though. Visual Basic 5.0 is not C++. Although it narrows the gap between the two, Visual Basic 5.0 doesn't deliver the overall performance and control of a C++ development environment.

Microsoft has also simplified database access by automating some of the steps needed to create the interface. A Data Form Wizard lets you select the type of database you will use. It supports Borland's dBase; Microsoft's Access, SQL Server and FoxPro; and all Open Database Connectivity-compliant databases. You then select the fields, lay out their appearance and let Visual Basic create the links between the database and the graphical user interface.

Microsoft bundles "developer" versions of its SQL Server 6.5 and Transaction Server 1.0 for prototyping and testing. New debugging features include the T-SQL debugger, which debugs SQL Server stored procedures, and Data Tips, which displays a breakpoint's value when you run the cursor over it. An enhanced object browser accelerates access to project modules and procedures by letting you look at all objects and their interface, properties, methods and events. Visual Basic 5.0's UserConnection lets you treat stored procedures as objects, which reduces code volume while increasing code reuse.

Another enhancement is native code compilation, which significantly improves an application's performance. Unlike Visual Basic's traditional pseudocode interpreter, this new proprietary compiler generates Intel bytecode and can make database access form-loading and command execution up to 20 times faster, according to Microsoft.

Although I didn't run formal benchmarks, I noticed a marked improvement over Visual Basic 4.0's performance.

Developers have their choice of compiling methods, depending on their goals. For example, they can select speed over executable file size or vice versa. Visual Basic 5.0 retains pseudocode compilation for backward compatibility and generating compact executables.

The software's redesigned Integrated Development Environment accelerates application building by providing fast access to all development modules from one screen. Modules include a forms package, a code editor, an object browser and a debugger.

IntelliSense, a new prompting feature, eliminates the need to memorize or search for syntax or parameters or learn object models. For example, a box popped up when I typed "String(" that displayed "String(Number As Long, Character)." It also displayed a list of all valid constants for the statement.

Form design also profits from improvements. The wizards and templates make it easy to insert common user aids. Improved object handling and alignment features simplify creating custom forms.

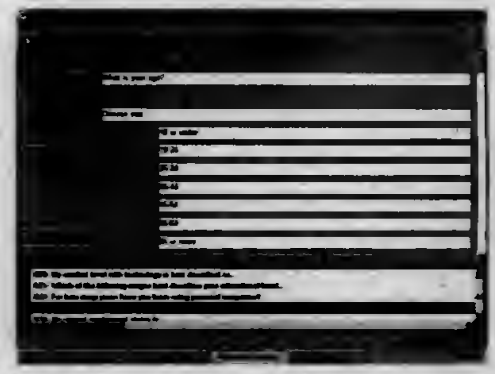
To enhance Visual Basic's reputation as a product worthy for use in developing enterprise-class applications, Microsoft has added support for team development. That includes Microsoft Repository 1.0 for storing source code and providing easy access to it via keyword searches.

Visual Basic 5.0, although encyclopedic in size, proved agile and responsive. It multitasked readily with several other large programs, including Netscape Communications Corp.'s Navigator, CorelDraw 6.0 and Word 97. Even during processor-intensive events such as scanning and downloading, I encountered no crashes or performance hits. □

Millman operates Data Systems Services Group, an independent networking and problem-solving consultancy. You can reach him at hmillman@mcimail.com.

SURVEY TOOL LETS ANYONE TAKE THE PUBLIC'S PULSE

BY ESTHER SCHINDLER/How do you find out what your users, customers or employees think? It's simple: You ask them. If you need to ask questions often or in depth, it helps to have survey software to make the job easier. Decisive Technology Corp.'s Decisive Survey 2.0 is a Windows-based tool that helps you create questionnaires, deploy them via electronic mail or a World Wide Web site and evaluate the results. It's good for someone who does periodic surveys but isn't a research guru.



Decisive Survey features an impressive selection of question types, including multiple choice and fill-in-the-blank

The product's Survey Builder walks you through questionnaire creation. It has an impressive list of question types and a library of common questions, including age range and level of satisfaction. You can add to or modify the library, and you just drag and drop questions to change their order. You can control question order by response — if Question 14 is answered "Yes," for example, the respondent can skip Questions 15-19 and link directly to Question 20.

OVERALL B+ GRADE

Once you create the survey, you can deploy it via E-mail or Web site. I didn't need to be a Web goddess to post my survey online; Decisive Survey generated the files I needed. Respondents had no problem using the online questionnaire. Responses were E-mailed to an account I'd set up.

If you have a Messaging Application Programming Interface-compliant E-mail package, Decisive Survey can import responses automatically.

Still, it's the results that count, and Decisive Survey does a fine job of evaluating and presenting them. It generates charts, tables, comments and statistics, with allowances for factors such as standard error and skewing. You can export results to word processors, spreadsheets, presentation graphics packages or statistical analysis programs or post the results on a Web site. You can also view the results as cross-tables and cross-charts (so you can judge responses broken down by gender) and use data filters to extract information (limiting the results displayed, for example, to those who answered "dark chocolate" to Question 3).

The user manual provides plenty of advice on how to write an effective survey, so a novice survey writer can become comfortable quickly. It's less informative about the software itself, though; most of the documentation is online, and it isn't always accurate. For instance, one help screen for the results-chart-modification dialog box provides guidance for options that don't exist.

But Decisive Survey is so good that its weaknesses show in stark relief, like a perfect restaurant meal marred by a dirty fork. The graphical reports offer a variety of display options and graph types, but in none of them could I instruct the program to display the numbers in a different color or as part of the legend instead of on the bar. I also wanted the abilities to ask more in-depth questions and to compare answers to questions with the same set of responses. For instance, I gave the same ranges (none, 1-3, 4-6 and so on) to the questions "How many shareware applications did you try?" and "How many of them did you register?" But I couldn't see the results for those questions side by side.

Although I liked the question types Decisive Survey supports, I wanted more depth. For instance, fill-in-the-blank answers can't be limited by type or constrained.

The software runs on Windows 3.1, Windows 95, Windows NT 3.51 or NT 4.0. I tested it using Windows NT 4.0 Workstation and Win OS/2 in OS/2 Warp 4. Decisive Survey didn't work perfectly under Win OS/2; I could create and manage the survey troublefree, but examining more than four or five results pages caused a general protection failure. The program ran fine on Windows NT.

Overall, this is a lovely program for people who need to create and manage surveys, and it will only improve with time.

Pricing starts at $799 for a 100-response version. □

Schindler is a reviewer in Scottsdale, Ariz. You can reach her at esther@primenet.com.

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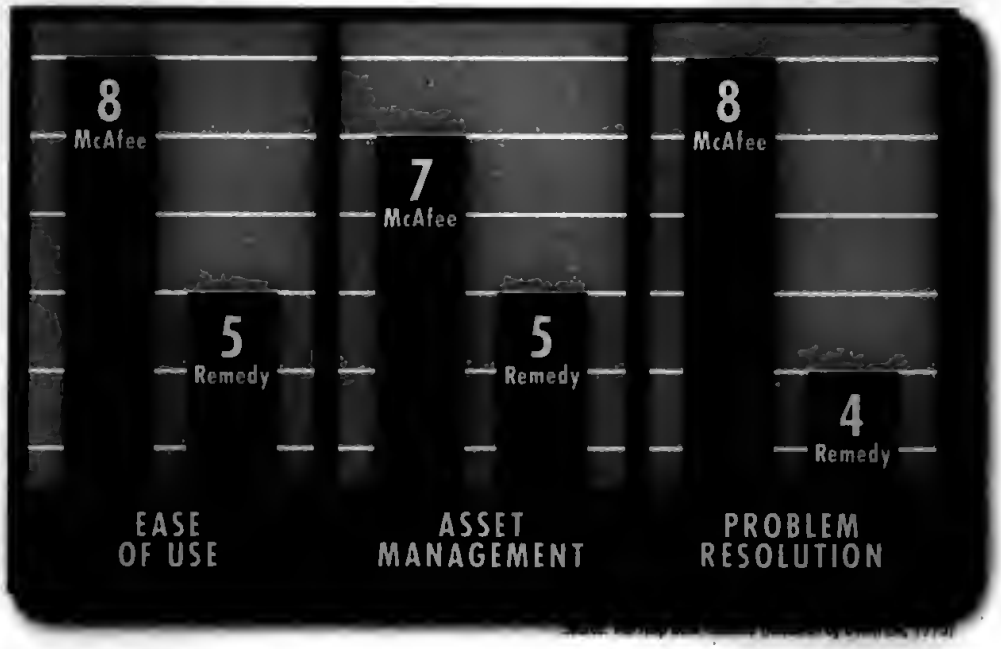

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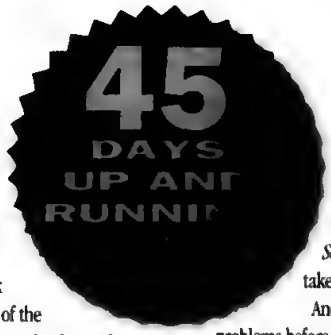

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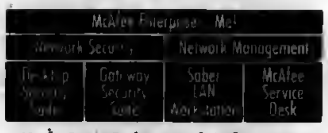
McAfee ServiceDesk reduces calls by empowering end users. Any authorized user with a Web browser can easily check on the status of an open ticket and update or resolve activities directly

Users can even provide the help desk with an instant snapshot of their system at the time a problem occurs. One click on a desktop icon automatically sends the help desk an updated inventory and screen shot.



McAfee ServiceDesk is part of McAfee Enterprise. McAfee's comprehensive network security and management solution.

Industry standard expert-based reasoning and knowledge packs, which are included at no extra charge, provide solutions in a matter of seconds. With its integrated Remote Control feature, *McAfee ServiceDesk* even lets the help desk take control of user desktops to fix problems remotely.

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In Depth

'MY CODING JUST FLIES'

For the autistic, the binary world of computing can be a place to excel

CHRIS CORBMEIER

COMPUTER PROGRAMMER Sara R. S. Miller can detect flaws in software almost at a glance by spotting irregularities in coding patterns. She can help clients with programs she hasn't seen in years by displaying a "printout" of the source code in her mind.

But Miller, president of Nova Systems, Inc. in Milwaukee, can be stymied by the most mundane decision if she hasn't encountered it before and "programmed" her brain with an appropri-

My coding, page 96

SARA R. S. MILLER *thinks she and other autistic programmers can turn their potent memories and concentration to their advantage: "I have a black-and-white interpretation of the world, and in computer programming . . . there are no half bits."*

'MY CODING JUST FLIES'

CONTINUED FROM PAGE 95

ate response. And everyday experiences such as traffic jams can send her into panics so intense she likens them to running a 4-minute mile.

Miller, 42, is autistic. She has overcome autism's incredible mental challenges and found employment in information systems work.

Indeed, Miller and many other autistics have turned their special ways of thinking — mighty memories, vivid visualization and potent powers of concentration — into vocational assets.

"I have a very limited, black-and-white interpretation of the world," Miller says. "And in computer programming, you either have the bit on or off; there are no half bits."

But although many autistics share Miller's mental assets, employers' ignorance of autism and autistics' poor interviewing and social skills often keep them out of the computer-related jobs at which they might excel (see story below).

Autism is a complex neurological disorder often marked by the inabilities to form emotional attachments and communicate. Poorly understood, it may stem from immature development of certain parts of the brain combined with hyperdevelopment in other regions of the brain, and possibly from abnormal brain chemistry. About 80% of the 400,000 autistic people in the U.S. are mentally retarded, but some have IQs in the genius range.

"Autism involves splinter skills," says Joel Smith, executive director of the Autism Services Association in Wellesley, Mass. "In mental retardation, development is all at the same low level. But with autism, you get some skills that are very, very high and some that are low."

Autism can't be cured, but its symptoms can be treated to varying degrees. Autistics often are so disabled they spend their lives in institutions, with a few, such as Dustin Hoffman's Raymond Babbitt character in the movie *Rain Man*, combining extraordinary mental gifts with debilitating defects.

But many of the so-called "high functioning" autistics are able to hold jobs, and computer use is an activity for which they often feel a keen affinity.

Autism comes in many degrees and variations, but autistics commonly have poor social skills and shun personal contacts. They seek out solitary activities such as computer use and the arts. Several autistics approached for this story agreed to be interviewed only by electronic mail.

"There is something about computers that is very autism-friendly," says Ami Klin, assistant professor of child psychology at the Yale Child Development Center at Yale University Medical School. "Computers are very rigid, and so are the people we work with."

"One of my clients once had a very nice insight," Klin adds. "He described himself as a computer simulation of a human being. He tried to decode the social world in a way that a computer would try to make sense of it."

AUTISM AND THE EMPLOYER

SUCCESSFUL AUTISTIC people often [illegible] to [illegible] or more mentors who taught them how to meet the demands [illegible] the workplace.

[illegible] such mentoring organization is the [illegible] Child Development Institute (PCDI) [illegible] Princeton, N.J. The institute tries [illegible] autistic children into its program [illegible] age 3. Some are later re[illegible] public schools; some remain until they are 21 and PCDI has found them jobs.

Gregory S. MacDuff, director of adult and community living programs at the institute, spends much of his time trying to convince employers that autistic people not only can contribute but also can be superior performers. "The biggest problem is they've had bad experiences hiring people with disabilities," he says.

David Spicer, an autistic programmer laid off from his job after 20 years, offers this advice to employers of autistics: "The best environment would be a stable one. Work would be broken into subtasks with clearly stated specifications and expectations."

"You must give an autistic person projects with well-defined goals," says Temple Grandin, an autistic professor at Colorado State University. "It can be a nearly impossible programming task, and he will just sit there and do it. And when he's done, you reward him with a new computer or more money, but you don't promote him into management. He simply cannot handle it."

The job interview is no snap, either, says Mark F. Romoser, an autistic computer consultant based in New York. "The interview process is designed to screen out those who don't fit in to the corporate culture. So when I come in, I set off every warning flag the interviewer's got."

Romoser, now 32, was diagnosed autistic at age 4. A doctor "solemnly told my mother to put me in an institution, forget about me," he says.

His mother didn't, and Romoser eventually graduated cum laude in psychology and computer science from Yale University. He recently installed a multimedia work center at the Association in Manhattan for Autistic Children.

Peter Levy, an autistic programming veteran of 27 years and co-founder of Accent Technologies LLC in Wichita, Kan., shares a trait common to autistics: striking candor about his strengths and weaknesses. On the one hand, he says, "I can find software problems so fast it can make folks uneasy."

But, he adds, "I'm almost completely asocial, can't read facial expressions or body language or social nuances well and probably don't use them well either. I have no particular relationship with any of my co-workers and am definitely not team-oriented."

But given the right environment, autistic employees will deliver, says autistic computer graphics specialist Gavin Simpson.

Eric Heath, a tutor at Arizona State University, offers this assessment of Simpson's ability: "Gavin's computer skills are unparalleled when it comes to graphics programs. He develops and implements his own techniques.... He does not seem limited by the tried-and-true methods, only his own imagination." — Gary H. Anthes

SOME EXAMPLES *of the work of prize-winning computer graphics artist Gavin Simpson, who is autistic. Wendel R. Simpson, Gavin's father, says, "The tragedy is that so many autistics do have the skills — and talent to burn — but because of their autistic 'differences' and social ineptitudes, they do not tend to get job offers."*

Temple Grandin, the autistic "Anthropologist on Mars" in Dr. Oliver Sacks' nonfiction book by that name, uses rich computer metaphors to describe her thinking. "All of my memories are stored as images," she says. "I can go and look at these pictures like Web pages on the Internet."

That is far from a handicap in Grandin's work. An assistant professor of animal science at Colorado State University, Grandin is recognized as a world expert in animal psychology and the design of humane facilities for cattle handling and slaughter.

She perfects her equipment by simulating its use in her brain, she says. "I can run the equipment in my head the way you would on a 3-D graphics workstation," Grandin says. "I used to think everybody could do that."

Grandin lectures at autism conferences, where she often meets autistic programmers. "They tell me, 'I don't do it sequentially. I visualize the whole program tree, and then I just type the code in on each branch,'" she says.

"When I do my coding, it just flies because I can keep so much in my brain at once," Miller says. "I can get stuff done in five or six hours that it would take others two days to do."

As with Grandin, Miller's thinking is intensely visual. Her response to any situation is driven by memories of earlier experiences encoded as images, not words.

"It's like I'm always running a video camera. What I have to do is create memories from visuals," she says. "I can't think myself out of a brown paper bag if I haven't seen something before."

Miller's panics come when she faces situations for which she has no stored image and associated behavior logic. She explains: "To see a new customer on my own would make me freeze. It's this overwhelming fear that a lion, tiger or bear is going to jump out at me. So my business partner and I go for the first time together.

"On the next call, I can go by myself because I've built a visual memory of where all the parts and pieces are, and I know where to look for the lions, tigers and bears."

Autistic people such as Grandin and Miller have used their superior intelligence, a variety of mentors and sheer hard work to overcome their mental handicaps.

But many autistics aren't so fortunate. In fact, estimates of the number of unemployed or underemployed autistic adults are as high as 85%.

David Spicer, for example, lost his job after 20 years as a programmer and is now on long-term disability for "anxiety-related issues."

Spicer, 49, says he is "of relatively high intelligence" and that his autism brings with it the creativity and intense focus so useful in programming. But he concedes that his performance on the job was "very uneven."

Like many autistics, Spicer often misunderstands implicit statements, and he tends to "shut down under stress" rather than communicate what is wrong.

"Others' expectations were both mysterious and frightening to me," he says.

"I get no respect," says autistic computer graphics artist Gavin Simpson, who runs a World Wide Web site devoted to autism at amug.org/a203. "That is Rodney Dangerfield's line, but it is reality for most autistics. We are not like you, never can be. Nor do we want to be. However, we believe that we are entitled to respect and a fair shot for just being human."

Simpson and other autistic computer enthusiasts say computers and the Internet can help them get that fair shot at employment — and a sense of worth and well-being.

"I've been obsessed with computers since I was 11," says Martijn Dekker, a 23-year-old autistic man in Paterswolde, Netherlands. Described by a friend as a "computer savant," Dekker runs an Internet support group for autistics at www.inlv.demon.nl.

"Groups such as mine seem to do away with the myth that autistics do not want to make contact with other humans," Dekker says. "Given the means that work for us — a computer, an Internet connection and a small virtual community of neurologically similar souls — we are able to form very deep and meaningful contacts." □

Anthes is Computerworld's *senior editor, special reports. His Internet address is gary_anthes@cw.com.*

A BRILLIANT BUT TROUBLED

autistic programmer agreed to an E-mail interview.

The programmer, a college student, says she mastered Basic at age 6 and recently learned Hypertext Markup Language in two afternoons. She learns new computer languages by examining an application's source code and "just remembering it and using it later."

"A lot of time, I find myself thinking not in English or Spanish but in some computer language," she says.

After two exchanges of messages, the programmer broke off communication with *Computerworld*. At about the same time, she published this poem on an Internet autism support group bulletin board:

I hate me
i hate my mouth
i hate my tongue
i hate my teeth
i hate my hands
i hate my fingers
i hate my ears
i hate my eyes
i hate my skin
i hate this body
that stands between
me and the world
i hate this mind
that stands between
me and the world
i want to burn away
this body
destroy this mind
become enveloped
in nothingness
and envelop nothingness
the only place where I
belong
is where there is peace.

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IT Careers

Women's WORK?

The number of women entering IS college programs and filling IS positions in the workplace is said to be declining. *Computerworld* asked four female IS professionals and a student to explain why.

Tama Olver, CIO, Amdahl

By Leslie Goff

Several recent studies have suggested that the number of undergraduates seeking computer science or IS-related degrees is dropping, especially the number of women enrolling in technical majors.

And yet, in larger corporations, women frequently hold 50% or more of the information systems staff and management positions, and women chief information officers have emerged at companies that include Baxter Healthcare Corp., Xerox Corp. and Pacific Telesis Group.

Computerworld spoke to the following five women in IS about their views on women's perceptions of the profession, the reality and parity within IS organizations:

- Tama Olver, vice president of corporate information services and CIO at Amdahl Corp. in Sunnyvale, Calif. Olver is an advisory board member for Women In Technology International (WITI). She started her career as a new-products engineer and moved into IS when she reached a career ceiling in manufacturing.

- Liz Corey, director of national recruiting, Management Consulting Services, at Price Waterhouse in Tampa, Fla. Corey says diversity is key to the company's employment strategy. *Working Mother* magazine lists the company among the top 100 for professionals who are mothers.

- Abbie Plessman, information technology college recruiting coordinator at MCI Communications Corp. in Colorado Springs. Plessman visits 40 to 50 college campuses each year to recruit new IS staff.

- Karen Brandon, a student at the College of Business of the University of Arkansas in Fayetteville. Brandon, a single mother of three, will become a systems programmer/analyst at Data-Tronics Corp., the IS services arm of trucking firm Arkansas Best Corp. in Fort Smith, Ark., after she earns a bachelor's degree in computer information systems in August.

- Marghretta McBean, owner of and consultant at Fixed Earth Enterprises. McBean is past president of the New York City chapter of the Association of Women in Computing (AWC). She entered one of the first master's degree programs in IS designed specifically to recruit women to the field, at City College of New York, in the early 1980s.

Women's work? page 101

Women's WORK?

CONTINUED FROM PAGE 100

CW: What trends have you noticed among women who enter and remain in the IS profession? Are their numbers dropping off faster than men's?

OLVER: I think the IS organization in corporate America is not male dominated. Mine is not. We have more women than men in senior management, and the department is about 50-50.

But I hear about the lack of young people getting into the field. I think a gap is being created that will be filled by end users, people who are primarily businesspeople, simply because the IS professionals won't be there.

CW: Do you think there is a general perception that IS is male dominated?

OLVER: I don't think the problem is that women perceive the field as male dominated. You look at the most visible people in this industry — Bill Gates, Larry Ellison, Charles Wang, others — and I think the field is perceived as *nerd*-dominated. And women don't want to be Dilbert. They don't see IS as a field they can project themselves into. I think those of us in high positions need to make ourselves more visible.

Liz Corey

Abbie Plessman

CW: You've mentored young women through WITI and other programs. What concerns do the young women you've worked with express?

OLVER: The main concerns I hear are about developing survival and advancement skills: How do I have a family and balance that with work? How do I learn the rules of engagement, the corporate politics? How do I learn how to succeed?

Gender issues

CW: What level of interest do you see among women in developing an IS career?

COREY: From the college campuses, we see a very equal number of resumes from men and women. But we run in to [gender] issues when we're trying to hire experienced people. Ten years ago, there really weren't that many women in IS. Now, those are the experienced women we are trying to draw, but even fewer of them are available because many are rearing kids. How to hang on to the experienced women we have continues to be an issue.

CW: What solutions have you come up with?

COREY: We offer telecommuting, flex-time and part-time arrangements. Or we try to find them local assignments or internal positions in training, course development, [human resources] or marketing.

We had one female applicant with six years' experience, and it took us two and a half months to get her to accept our offer. She was getting married that summer. We were able to offer her a local assignment for six months, after which she would have to travel. And she finally said OK.

CW: What do women ask in an interview that men don't?

COREY: Women are concerned about the support network available to them. They ask how many women project leads we have, how many women are in senior management, what kinds of long-term opportunities are available. On the campuses, men and women tend to ask a lot of the same questions. But women always ask about future support if they get married and have children.

IS job can be turn-off to women

CW: At campus recruiting sessions, what is the ratio of men to women seeking IS positions?

PLESSMAN: In the resumes and candidates that I see, there's a higher percentage of men. Of our 1996 college hires, two-thirds were men. But in the MCI IS organization, we have more women overall.

CW: Why are fewer women on campus interested in IS careers?

PLESSMAN: When women think of an IS job, it's an automatic turn-off. They think they will be sitting alone in a cubicle in front of a PC eight hours a day. But that isn't the way it really is. My first job at MCI was as a production coordinator on the mainframe, and all my friends laughed at me because I liked it. They thought it seemed horribly dull. But it was exciting because I had the chance to learn something new and completely different. And I wasn't sitting at a computer. I was working in teams and troubleshooting major problems and coordinating groups collaborating on solutions to problems.

CW: What types of women come to the campus recruiting sessions?

PLESSMAN: We get a mix of women who know what IS is really like — who are real, hard-core, troubleshooting computer geeks — and women who realize that just a basic understanding of computers is going to be very valuable in their careers. Also, I think you find women who have been in the workforce and decided to go back to school are more likely to pick up a technical or computer science degree than young women who go straight to college from high school.

Falling in love with technology

CW: You went back to school at 32. Why did you choose to get an IS degree?

BRANDON: I had worked in a doctor's office in DeQueen [Ark.] for five years. The salary was hard to live on with three girls, so I started thinking about getting a bachelor's. I had helped a consultant install a three-PC NetWare LAN at the office, and I had fallen in love with the technology.

I kept hearing that the IS profession would grow 100% over the next five years, and that interested me. I thought an IS degree would make my family better off over time.

CW: Did you perceive IS as a particularly favorable field for women?

BRANDON: I didn't have any expectations in that regard. There are definitely more men in our department than women, but I've never experienced any bias from faculty or classmates.

CW: How have you managed to be a single mom, work and go to school?

BRANDON: I haven't taken any breaks; I've worked straight through summer school. I had to put off taking a lot of computer lab classes, like DB2, until my older daughters could stay home alone with my youngest.

You can get through anything if it's temporary. We're all in countdown mode: We have 128 days left, and we mark each day off the calendar with a big red X.

CW: How do you think your new career will change your life?

BRANDON: I think I will wake up and go to work and be challenged every day in that environment. Because things change so much, it isn't a career you get frozen into.

Well-informed consultants

CW: What advantage, if any, does consulting offer to women in IS?

McBEAN: The female consultants I meet tend to be far more well-rounded in the technology and more aware of what's going on in the IS job market. A lot of the women IS employees I meet are in vacuums and don't have a clue as to what is going on. And many are very ignorant about their salary potential.

CW: Have you observed any trends of parity among men and women in IS?

MCBEAN: About 75 women belong to the New York City chapter of the AWC. Back in the mid-'80s, we had 250 members. Membership is down nationwide. I think it's a combination of women in their mid-30s having babies and fewer women entering IS. At trade shows and vendor demonstrations, I see far fewer women than men — sometimes as few as 5%. I can usually count them, even in a large crowd. □

Goff is a freelance write? in New York.

COMPUTERWORLD

[illegible] Career office advice on how IS managers can best juggle a mix of permanent and contract staff.

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BY *the* BOOK!

New career titles on IS education, consulting and job hunting

Using the Internet and the World Wide Web in Your Job Search, Second Edition
By Fred E. Jandt and Mary B. Nemnich
Jist Works, Inc., Indianapolis; 308 pages; $16.95 (paperback)

ALTHOUGH THIS simply written book may irritate information systems professionals by assuming readers know nothing about the World Wide Web, don't dismiss it lightly. If online job searching is still new to you, this book has valuable insights on how to use this new recruitment medium.

Jandt and Nemnich explain how to post your resume on the Web's many job-search sites, such as The Monster Board (www.monster.com), and offer tips on how to prepare your resume for electronic dissemination.

For example, the authors say you should be sure to mention specific skills, such as "finance" or "electrical engineer," because your resume probably will be scanned by a computer that searches for keywords.

The authors warn against one new Internet job-seeking tactic: putting a resume on a personal Web page and referring people to it by posting the uniform resource locator in an Internet newsgroup that deals with jobs. Most employers won't take the time to search out a personal Web page, they say.

There's also a look at a new phenomenon called the "Internet preinterview," in which a person in charge of hiring may try to fill out details of a resume by exchanging electronic mail with an applicant before an in-person interview. This preinterview process tends to eliminate the chance of surprises during a face-to-face interview, and that works in favor of the job seeker and the employer, the authors say.

— Steve Alexander

ErgoWise: A Personal Guide to Making Your Workspace Comfortable and Safe
By William A. Schaffer and Rob Cross, M.D., C.P.E.
American Management Association, New York; 138 pages; $16.95 (paperback)

PERFECTLY SANE people spend hundreds of dollars or more each year on exercise programs, fitness gear, stress reduction and a host of other things designed to improve their well-being. Meanwhile, at the office, they put up with equipment that induces almost as much pain and suffering as a solid rear-end collision.

There are slippery telephone receivers that won't maintain proper ear contact without having the user assume the shape of the Hunchback of Notre Dame. Then there are the multiple perils of the computer: glare from monitors, keyboards at the wrong height and printers that emit volatile organic compounds.

Schaffer, a manager at Sun Microsystems, Inc., and Cross, an occupational medicine consultant, map out the do's and don'ts of ergonomics with simple line drawings that supplement lively text. Ergonomics, by the way, is the science of designing safe work environments and equipment.

Many of the key lessons can be extracted from these drawings. But if you really want to know about complex subjects such as repetitive strain injuries — or if you use a keyboard regularly — you should read on; there's plenty to digest.

Schaffer and Cross note that ergonomic issues may require some expense to address adequately. But there can be a measurable payoff in productivity, particularly, as a safety manager at Sun told them, in reducing time lost from work and the frequency of more serious upper-body and cumulative trauma injuries.

— Alan R. Earls

Stretching At Your Computer or Desk
By Bob Anderson
Shelter Publications, Bolinas, Calif.; 102 pages; $9.95 (paperback)

ANDERSON IS a leading authority on stretching. This tidy little book addresses the woes of the sedentary lifestyle: fatigue, stress and more serious conditions such as carpal tunnel syndrome. It's especially appropriate for computer professionals who must sit chained to a monitor and keyboard all day.

The good news for cyberslugs, Anderson says, is that many of these problems can be alleviated by simple stretching exercises.

The introduction explains how and why problems occur. The book then takes readers step-by-step through a simple trial routine that teaches how to feel the difference between a proper stretch and a "drastic stretch" — when you've gone so far it hurts. The book then outlines one- to two-minute routines that correspond with various office situations — the good-morning workout, a routine for neck and shoulder stiffness and on-the-telephone stretches.

The diagrams are drawn clearly, and the areas being stretched are shaded so you know which muscle groups you're working on. Text is simple and kept to a minimum, except when explaining more complex ideas such as ergonomics and repetitive strain injuries. This book is likely to benefit IS professionals if they practice the routines regularly — always a big question. The exercises I tried did indeed make me feel less stiff-jointed, more flexible and relaxed.

That being said, however, the book is padded. Each section begins with four almost-blank pages. The book's last 18 pages are largely devoted to self-promotion, books, equipment and an author bio longer than the one in my edition of *Moby-Dick*. That justifies charging $9.95 for what is essentially an extended magazine article.

—Melanie Menagh

Every Manager's Guide to Information Technology, Second Edition
By Peter G. W. Keen
Harvard Business School Press, Boston, 290 pages; $18.95 (paperback)

INFORMATION SYSTEMS professionals who are sick and tired of not being understood may want to pick up this book for the non-IS counterparts with whom they work closely.

Keen's avowed goal is to help nontechnical people manage IS effectively, and the book is a splendid guide for those strangers in a strange land. The prose is graceful and to the point, and the book gives the reader plenty of context for IS ideas and trends.

Unfortunately, the speed of technological change already has outdated parts of the 250-page glossary of information technology terms that makes up most of the book. Even nontechnical readers are likely to know that Internet statistics from 1994 are no longer meaningful and that time has bypassed statements such as this one on page 220: "For the next few years [a basic PC] is likely to be one based on the Intel 486 chip."

But, for the most part, the book successfully captures the essence of IS ideas in just a few words.

In describing the importance of knowing the language of IS, Keen — who writes a column for *Computerworld* — says information technology is critical to dealing with today's "cruel economy" of eroding profit margins, global competition, demands for high quality and service, industrial overcapacity and technological upheaval.

About client/server computing, he observes that, "though conceptually simple, it is not at all simple technically." Many IS people may wish they had thought to say it that way.

— Steve Alexander

The Computer Consultant's Workbook
By Janet Ruhl
Technion Books, Leverett, Mass.; 276 pages; $39.95 (paperback)

A MOSS ACCURATE title for *The Computer Consultant's Workbook* could have been *Consulting for Dummies*. Not that a consultant or anyone reading this book is likely to be anything but a bright achiever type. Nevertheless, Ruhl has succeeded in presenting her information with the same simplicity and accessibility found in the well-known "Dummies" series of computer-oriented titles published by IDG Books Worldwide, Inc., a subsidiary of *Computerworld*'s parent company.

That means almost every page can be quickly translated into a to-do list or the outline of a plan of action. And it's easy to find the information you need, when you need it. Checklists and clear structure are supplemented by information boxes, scripts and "gotchas" — to-the-point notes on pitfalls to avoid.

Ruhl, who has been on the staff of CompuServe Corp.'s Consultant's Forum since 1990, clearly has heard every gripe and war story consultants tell one another. What she's heard is distilled in the book. As a result, she's credible when offering advice to would-be consultants trying to determine if they have the skills needed to make a living in the field.

Ruhl is equally credible when she outlines structures for setting up and managing a consulting practice, setting prices and collecting fees and suggestions on partnering with other consulting organizations.

Although the volume of information Ruhl provides is tremendous, it's easy to absorb and can be immediately useful. Even experienced consultants will find ideas to savor. But those who will benefit most from *The Computer Consultant's Workbook* are individuals with good technical skills who need a short course in entrepreneurship and self-management. In fact, it's hard to see how someone following Ruhl's savvy suggestions can go far wrong.

It doesn't get more realistic than her suggestion that consultants develop a streak of paranoia: "A consultant should never assume that their clearest explanations have been understood or their direst warnings heeded. In short, they should never assume anything!" she advises. □

— Alan R. Earls

Alexander is a freelance writer in Edina, Minn. Earls is a freelance writer in Franklin, Mass. Menagh is a freelance writer in Maple Corner, Vt.

Software Development Engineer: Develops, modifies, and designs connectivity solutions software applications for use in a commercial electronic switching product which is capable of performing address translation, directory synchronization, Internet browsers, and administrative tool functions in a C/Unix environment. Will implement plan, design, and test and execute entire life cycle software for such directory components including establishment of appropriate protocols and other electronic messaging components. Will perform such software development in an IBM AIX or Sun Solaris system as well as development of ancillary applications in a PC/OS2 NT, Windows NT, UNIX to DOS operating system. Establishes appropriate product support and system test as required to insure appropriate software implementation and integration within the entire product. Requires Master's or completion of coursework requirements for Master's degree in Electrical Engineering. Also requires and year experience in the job to be performed to one year experience as an Information Systems Consultant II experience in related field, entire experience must be in the software development and analysis of connectivity solutions using C language in a multisystem and multiplatform environment including Sun Solaris, PC/OS2 NT, Windows NT, UNIX, and DOS. $43,000/yr; 40 hrs. week, 9:00 AM to 5:00 PM. Two copies of resume to: Mike Brooks, JETS-ALC: P.O. Box 7972; Madison, WI 53707-7972. Please reference case number C100090.

Software Development Engineer: Design, implement & debug real-time telecommunications software for international manufacturer of voice, digital & data telecommunications equipment. Participate in software design, coding, testing & software defect resolution for OC-3 & OC-12 fiber optic interfaces that will provide SONET (Synchronous Optical Network)/ATM (Asynchronous Transfer Mode) solutions for end-to-end high speed network services using C & UNIX. Responsible for performance evaluation & enhancement of computer networks & other telecommunication systems engineering aspects of switch software. Minimum requirements: M.S. in Computer Engineering, including the completion of one course each in: 1) High Speed Networks, 2) Computer Networks, 3) Telecommunications Systems Engineering, AND 4) Performance Evaluation (Computer Networks). Must have 1 year of experience in the job offered. Must have completed one major project each in 1) Synchronous Optical Networks (SONET)/Asynchronous Transfer Mode (ATM) Standards, & 2) Performance Evaluation/Enhancement of telecommunication switch software. 40hrs/wk, 8am - 5pm, $45,000/yr. Must have proof of legal authority to work permanently in the U.S. Send resume to Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago, IL 60605. Attn: JOAN SYKSTUS, Refer V-IL-16340-S. AN EMPLOYER PAID AD. NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

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Dakotah, Inc. of Webster, SD is seeking a AS/400 Programmer/Analyst and two Systems Analysts for its IS Department. Programmer/Analyst must have exp with RPG & CL programming in a manuf. environment, AS/400, EDI, database structures and skills with NT Server, SQL Server, Access, and Visual Basic. Systems Analysts must have proven skills applying information technology in a business environment, also exp. with AS/400 and NT Server tools, process improvement, and project planning. Excellent Human Relations skills are required. Dakotah offers a competitive salary program with many opportunities to expand your professional skills. Send resumes to Dakotah, Inc., One N. Park Lane, Webster, SD 57274 or call (605) 345-4646.

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Dakotah Inc

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Our Systems Engineers are the most visible customer service group in the company. Responsible for implementation of a range of UNIX systems for key engineering customers. Solid knowledge and experience with one or more of the following is essential: AIX, IRIX, Solaris, HP-UX, NT.

The ideal candidates will be experienced in:
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- Good communication
- Project delivery

Duties will include:
- Installing software
- Resolving technical problems
- Performance tuning

Additional background knowledge of TCP/IP, C++, Oracle, is a plus.

We offer an excellent compensation package including, 401(K), Medical/Dental insurance, 20 days paid vacation and company vehicle for the appropriate people. For confidential consideration, please send resume and salary history to: Human Resources, D|E|C|S Inc., 900 Wilshire Drive, 6314, Troy, MI 48084. Fax # (810) 362 2041. Equal Opportunity Employer.

D|E|C|S
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SENIOR RESEARCH MANAGER to work in the Direct Response/List Services and Circulation Department of a major retailer. Will manage all aspects of marketing list selection fulfillment, including managing and directing the list management systems/infrastructure. Will manage and maintain an accurate database of all currently available "regular," "special" and "outside" lists. Will supervise list management programming (including Mainframe programming) and act as a technical interface with Programming Group. Will supervise statistical modeling and segmentation in SAS. Will supervise and direct activities of Research Analysts, Database Design Analysts, etc. who utilize such computer skills as MVS/TSO/ISPF, DFSORT/SYNCSORT, COBOL, and/or PL/1, SAS, UNIX, "C", SQL and Group 1 to continually enhance and update department's transaction processing system and department's list selection system and infrastructure. Must have a Master's Degree in Computer Science and 5 months direct experience OR 1 year related experience as a Database Design Analyst. If qualifying under related experience, related experience must be in designing, coding and installing a list selection system. Experience must also have included mainframe programming, list management programming, statistical modeling and segmentation in SAS. Experience must also have included application to the computer skills listed above. Salary $45,000/yr., 40 hrs/wk, 8 am 5 pm, OT n/a, M-F Must have proof of legal authority to work permanently in the U.S. NO CALLS - SEND TWO COPIES OF BOTH RESUME AND COVER LETTER TO: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 2 South, Chicago, Illinois 60605, Attention: BRENDA KELLY, Reference # V-IL 16667-K. AN EMPLOYER PAID AD.

Senior Software Engineer to research, design and develop computer software systems utilizing Oracle RDBMS in conjunction with hardware based on UNIX operating systems, for medical, industrial, financial, military, aerospace, communications, and scientific applications, applying principles and techniques to computer science, engineering, and mathematical analyses; analyze software requirements to determine feasibility to design within time and cost constraints; consult with hardware engineers and other engineering staff to evaluate interface between hardware and software, and operational and performance requirements to overall system, formulate and design software system utilizing Oracle server database technology and scientific analysis and mathematical models to predict and measure outcome and consequences of design; develop and direct software system-testing procedures, programming, and documentation using Pro'C, PL-SQL, and Oracle server-objects; consult with customers concerning maintenance of software system; and may coordinate installation of software system. Requires Bachelor's or equivalent degree in Computer Science, Math, Engineering, Chemistry or any closely-related math-based discipline and four years experience in systems analysis, design, development and implementation of computer software. Multiple openings available. Successful applicant must be able to perform job duties on date of application. Qualified applicants must presently be eligible for permanent employment in the United States. Salary $57,200 per year plus employee benefit plan; 40 hours per week (8:30 a.m. to 5:00 p.m.); overtime as needed with additional compensation. Send resumes to Ms. Lalah Thomas, Resource Manager, Computer Task Group, 12555 Olive Boulevard, Suite 425, St. Louis, Missouri 63141-6362. An Equal Opportunity Employer.

Software Engineer (Dallas, TX). 5 Positions. Analyzes, design & admins. of ORACLE RDBMS, using ORACLE DEVELOPMENT TOOLS, SQL SERVER & VISUAL BASIC. 40 hrs./wk. Requires Master's in Comp. Sci., Comp. Eng., Math or MIS & 2 yrs. exp. in job offered or 2 yrs. exp. as programmer/analyst, systems analyst, database analyst, consultant or business applications programmer. All applicants must possess min 2 yrs. ORACLE VISUAL BASIC & SQL exp. $50,000/yr. Send resume to Michele Jackman, Triad Data Inc., 515 Madison Ave., #1810, New York, NY 10022. re: Position #2893.

Software Engineer (Dallas, TX) Analysts, design & admins. of ORACLE & INFORMIX relational database management systems using SQL tools and C language. 40 hrs/wk. Requires Master's in Comp. Sci., Comp. Eng., Math, or M.I.S. & 2 yrs. exp in job offered or 2 yrs exp as programmer/analyst, systems analyst, database analyst, consultant or business applications programmer. All applicants must possess min. 2 yrs ORACLE, INFORMIX, SQL & C language exp.$50,000/yr. Send resume to Jennifer Weaver, COMSYS Technical Services, Inc., 4000 McEwen South, #200, Dallas, TX 75244. Please indicate Position #3968.

Programmer Analyst-Plan, develop, test and document computer programs, applying knowledge of programming techniques and computer systems; evaluate user request for new or modified programs, determine feasibility, cost and time required, compatibility with current system and computer capabilities, consult with user to identify current operating procedures and clarify program objectives; formulate plan outlining steps required to develop program using structured analysis and design; convert project specifications, using flowcharts and diagrams into sequence or detailed instructions and logical steps for coding into language processable by computer. The intended responsibilities include defining user requirement, preparing requirement analysis document, programming, testing and implementation and using a wide variety of hardware, software and languages including, but not limited to, IBM AS/400, RPG/400, CL/400, SQL/400, RPG III, DDS, SDA, RLU, DBU, OFU, OS/2, MS-Word, MS Project and MS Access. Reqs: Bachelor's in Computer Science, Systems Analysis, Computer Information Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equivalent in education and experience and 2 years experience in job offered or 2 years experience in related occupation as a Programmer, Programmer Analyst, Systems Analyst, Software Engineer, Jr Programmer, Project Coordinator or Consultant: will accept 3 years of college education plus 3 years experience in the job offered or in a related occupation in lieu of the required education and experience. the experience in the job offered or related occupation must have included 6 months using each of the following: IBM AS/400, RPG/400, CL/400, and SQL/400. $45,000.00/yr., 40 hrs/wk., 8a-5p, M-F Send resumes to 7310 Woodward Ave, Fourth Floor, Detroit, MI 48202. Ref #1990-88 Employer Paid Ad.

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SENIOR PROGRAMMER

In this position you will be responsible for creating new and modifying existing applications, programming as needed, and testing and implementing developed software. Position requires:
- Bachelor's degree
- 6 years overall experience in an MIS environment
- Experience working with Uniface preferred, will substitute 4GL experience; experience with Oracle, AIX and financial applications also preferred

REQ #[illegible]

UNIX SYSTEM ADMINISTRATOR

In this position, you will be responsible for executing AIX programming tasks. Must be thoroughly knowledgeable of AIX 2.2 and/or 4.1 and its associated program products, which includes installation, maintenance and problem determination and resolution. Position requires:
- Undergraduate degree in computer science or related field, experience can be substituted on a year-for-year basis
- 2+ years experience, in-depth knowledge of Unix products; 1 year AIX experience preferred
- Excellent problem solving, planning, analytical and communication skills
- Must be detail oriented with a strong preference to the technical aspects of MIS

REQ #USA

DATA ANALYST

In this position, you will be responsible for database tasks. You will create, review and maintain database design and standards. Qualified individual will perform database administration to include creating tables, indexes, adding columns, and manages tables space. Will also perform database utilities such as reorganizing table spaces, running statistics, and data loading. Position requires:
- Bachelor's degree
- 2+ years experience with IBM/DB2 Version 6 (on MVS platform) and/or Oracle Version 7.x (on AIX/Unix platform)

REQ #[illegible]

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[illegible]
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Programmer Analyst: Creates, designs, and develops micro-computer software for use in the insurance industry using Quick Basic, Visual Basic, MS Access, and Borland C/C++. Programs, designs, modifies, and develops backend, frontend, and database software systems as required to ensure proper flow of data. Insures that backend software system is capable of developing and processing higher and mathematical calculations which are required to determine insurance risk factors in conjunction with insurance premium to enable insurance agents to coordinate policies for various clients. Uses principles of an expert system and a knowledge-based software system to create frontend interfaces which will be integrated and coordinate relational databases such as MS Access and will develop appropriate graphic user interfaces using structural pattern recognition techniques. Requires Bachelor's degree in Computer Science. Also requires two years experience in the job to be performed or two years experience as a Programmer Analyst. If experience in related field, work experience must far in the design and development of a knowledge-based software system in which the individual uses principles of an expert system and pattern recognition techniques to develop graphic user interfaces for implementation on a relational database management system. Must have proof of legal authority to work permanently in the U.S. 40 hours per week, 9:00 a.m. to 5:00 p.m. Salary: $37,600.00 per year. Job Location: Des Plaines, IL. Please send resumes to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, Illinois 60605. Attention: JANET ASCHENBRENNER, Reference # V-IL 16694-A. AN EMPLOYER PAID AD. NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Programmer/Analyst. 40 hr/wk from 9am to 5pm. $45,000/yr. Design and development of commercial application systems such as payroll and inventory systems, using Relational Databases. Tools to be used will include: ORACLE, SQL*FORMS 3.0, PRO*C and SQL*REPORT. Require Bachelor's Degree or Computer Engineering or Computer Science and 2 years experience in job offered or as Programmer/Analyst, Systems Analyst, Software Consultant or any combination thereof including 1 year work working with ORACLE, SQL*FORMS 3.0, PRO*C, SQL* REPORT. Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street- 3 South, Chicago, Illinois 60605, Attention: Mary Miller, Reference #V-IL 15412-M. An Employer Paid Ad. No Calls. Send 2 copies of both resume and covey letter.

Systems Analyst-Analyze user requirements, procedures & problems to automate processing or to improve existing comp. sys.; advise, support, optimization & administration of LAN based on Novell Netware O.S. using Ethernet topology & IPX/ SPX, TCP/IP & NetBEUI protocols, provide day-to-day end user technical support for comp. hardware, software & network printing related problem; design & implement disaster recovery plans, & database administration of Microsoft Access & Excel. Reqs. Bachelor's in Comp. Sci., Sys. Analysis, CIS, Comp. Engineering, Electrical Engineering, Electronic Engineering or Math & 6 mo. experience in the job offered; $40,000/yr., 40 hrs/wk., 8a-5p, M-F. Send resume to Timothy Gaudet, HR Manager, Computerized Fleetay Integration, Inc., 24100 Southfield Rd., Ste 200, Southfield, MI 48075-3851. Ref. No. W0887.

Programmer Analyst (Dallas metro, TX). Design, dev & implementation of financial applications software using COBOL/400, SQL/400 & RPG/400 in AS/400 hardware environments. Writing of client customized programs, performance of screen design & training of users. Requires Bachelor's in Comp. Sci., Comp. Eng., M.I.S., Commerce or Bus. & 2 yrs. exp. in job offered. $50,000/yr., 40 hrs.wk. Send resume to Jennifer Weese, COMSYS Technical Services, Inc., 4000 McEwen South, #200, Dallas, TX 75244. Re: Position #3648.

Programmer/Analyst. 40 hr/wk from 9am to 5pm. $45,000/yr. Development of commercial application system using GUI (Graphic User Interface) on the front end and relational database at the back end. Front end will be Powerbuilder 3.0 and back end will be Sybase. Require B.S. degree in any field and 1 year experience in job offered or as Software Consultant working on Powerbuilder 3.0 at the front end and Sybase at the back end. Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 State State Street - 3 South, Chicago, Illinois 60605, Attention: Mary Miller, Reference #V-IL 15874-M. An Employer Paid Ad. No Calls. Send 2 copies of both resume and cover letter.

S/w Eng: design data acquisition & management system for Chrysler Proving Ground to collect vehicle emission test results; implement front end & back end using Sybase 10, PowerBuilder 4.0 & Oracle 8.0 (SQL & Pro C) to provide access to engineers to generate report & submit test request; test & troubleshoot data acquisition & other s/w system applying knowledge in database management, operating system, object oriented programming & online information retrieval. Req: MS in eng sci or computer sci, 1 yr exp in job offered or related as system or s/w eng, related exp include or whole or in part using Oracle 6.0 (SQL & ProC), Sybase 10 & Powerbuilder 4.5. 40hr/wk, 8-5pm, $48,000/yr. Send resumes to 7310 Woodward Ave. Rm 415, Detroit, MI 48202. Ref No. 181198. Employer paid ad.

Programmer/Analyst 40 hr/wk from 9am to 5pm. $50,000/yr. Design, development, and porting of windows based systems. Hardware, operating systems and tools will include: Unix, Windows NT, Windows 3.1, Visual Basic, Visual C++ and CICS. Require 2 years experience in job offered or as Software Engineer including one year on Unix, Windows NT, Windows 3.1, Visual Basic, Visual C++ and CICS. Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street-3 South, Chicago, Illinois 60605, Attention: Mary Miller, Reference #V-IL 15864-M. An Employer Paid Ad. No Calls. Send 2 copies of both resume and cover letter.

Programmer/Analyst (2 Positions)-Fort Worth/Dallas, TX. Programming, maintenance & dev. of IBM mainframe on-line & batch information systems in NATURAL/ADABAS, employing JCL. Bachelor's or functional equivalent in Comp. Sci., Comp. Studies or M.I.S. & 2 yrs. exp. in job offered. $48,000/yr., 40 hrs./wk., 9-5, M-F. Send resume in dup. to Michele Jackman, Human Resources Assistant, Triad Data Inc., 515 Madison Ave., #1810, New York, NY 10022.

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- Work in a team environment
- Client/server 3 tiered development, UNIX, WIN XX, SAS, VB or ERP would be beneficial
- A minimum of 3 years experience leading application development projects

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Systems Engineer. 40 hrs/wk. 8am-5pm. $54,000/year. Design & development of a benefits administration using object-oriented design to a 3-tiered client-server environment. Perform object oriented analysis & design w/ prototype C++ coding & subsequent subsystem development in multi-platform environ. Using Rumbaugh's methodology for design & HP/Centerline C++ (under HP-UX) for implementation. Resp. for integration of sub-system into large scale distributed application spanning 3-tiers & multiple lines of business. Req. Bach. Comp. Sci or Engineering, & 2 ys exp in job or 2 ys as Software Engineer (Consultant) & verif ref. Must have proof of legal authority to work permanently in U.S. Send 2 copies of both resume & cover letter to: Illinois Dept. of Employment Security, 401 S. State St -3 South, Chicago, IL 60605, Attn:Joan Sylstus, Ref #V- IL 15719-S. An Employer Paid Ad. No calls.

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Product Engineer: Perform system Failure Mode & Effects Analysis (FMEA) process for 1999 Jeep computer & electrical systems; identify potential system failure modes using FMEA, Fault Tree Analysis, Potential FMEA Reference Manual, responsible for electromagnetic compatibility (EMC) compliance verification for 99 Jeep electronic modules; examine circuit schematics & PC board layout; meet with clients to overlook EMC compliance. Req: MS in computer sci or eng; 2yr exp in job offered or related as computer or electrical eng, related exp include working in auto OEM industry involving electromagnetic compatibility (EMC). 40hr/wk, 8-5pm, $25.00/hr. Send resumes to 7310 Woodward Ave., Rm 415, Detroit, MI 48202. Ref No. 188586. Employer paid ad.

Systems Analyst. 40 hr/wk from 9am to 5pm. $56,000/yr. Systems analysis and software development of RPG based applications on AS/400 platforms and Progress based applications on UNIX and Client/Server based platforms. Worked with manufacturing and distribution packages including BPCS and HFA and EDI (Electronic Data Interchange). Require three years experience in job offered or as Programmer/Analyst including software development work on RPG based applications on AS/400 platforms, Progress based applications on UNIX and Client/Server based platforms, manufacturing and distribution packages including BPCS and HFA, and EDI (Electronic Data Interchange). Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago, Illinois 60605, Attention: Mary Millea, Reference #V-IL 15411-M. An Employer Paid Ad. No Calls. Send 2 copies of both resume and cover letter.

Programmer/Analyst. 40 hrs/wk from 9am to 5pm. $40,000/yr. Design, development and implementation of commercial Application Systems using Relational Databases and IBM Mid Range Systems. Developing interfacing between Relational Database on Open Systems and IBM Mid Range Systems. Operating Systems and tools at include: UNIX, SYBASE, APT, C, AS/400. Require 2 years experience in job offered or as Systems Analyst/Project Manager including one year of work with UNIX, SYBASE, APT, C, AS/400. Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street - 3 South, Chicago, Illinois 60605, Attention: Mary Millea, Reference #V-IL 15865-M. An Employer Paid Ad. No Calls. Send 2 copies of both resume and cover letter.

Programmer/Analyst. 40 hrs/wk from 9am to 5pm. $45,000/yr. Development of software systems using object oriented methods and languages including SMALLTALK, C and C++. Require 2 years experience in job offered or as Systems Engineer including one year of work with SMALLTALK, C and C++. Must have proof of legal authority to work permanently in the U.S. Please send resumes to Illinois Department of Employment Security, 401 South State Street -3 South, Chicago, Illinois 60605, Attention: Mary Millea, Reference #V-IL 15501-M. An Employer Paid Ad. No Calls. Send 2 copies of both resume and cover letter.

Systems Analyst (Metro Chicago, IL). Performance of customer specific, system dev & client/server networking connectivity (mainframe to LAN, LAN to LAN, LAN to PC & PC to mainframe) within NOVELL & UNIX environments. Support of RJE, SDLC, mainframe emulation & file transfer. Dev of TOKEN RING & ETHERNET interfaces with IBM mainframes. Requires Bachelor's in Comp. Sci., Comp. Eng., M.I.S., Math. or Bus. & 2 yrs. exp. in job offered, plus min. of 1 yr. WINDOWS NT exp. $50,000/yr., 40 hrs.wk. Send resume to attention of: Marie L'Esperance, COMSYS Techical Services, 675 Third Avenue, New York, NY 10017 – Re Position #3251

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- Client/server software selection and implementation
- Network management, user support, project management
- Object-oriented design and development

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For winners list (available after 6/30/98) send self-addressed, stamped envelope by 1/15/98 to: Super Prize Winners, P.O. Box 9183, Medford, NY 11763-9183.

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All prize values are in U.S. currency. No transfer of prize permitted. A winner is responsible for all taxes on his/her prize.

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Winner will be determined in a random drawing on or about 5:00 pm (EST) the Monday following the event date. You need not be present to win. The prize (and its retail value) detailed with the entry form is guaranteed to be awarded & delivered to winner approx. 30 days from drawing date. If notification letter or prize is returned as undeliverable, it will be awarded to an alternate winner at random. No prize substitutions except due to unavailability, in which case a prize of equal value will be awarded. Prize not transferable or redeemable for cash. All taxes on prize are winner's responsibility. Acceptance of prize constitutes permission (except where prohibited) to use winner's name, hometown & likeness for promotional purposes without additional compensation.

Sweepstakes is open to legal US residents, 18 & older. Odds of winning determined by total number of entries received. Est. distribution: 168,448. Sponsor: Computerworld, Inc. 500 Old Connecticut Path, Framingham, MA 01701. Employees of Computerworld, Inc., its affiliates, subsidiaries, retailers, advertising & promotion agencies & immediate families of each not eligible. All federal, state & local laws & regulations apply. Void in Puerto Rico & where prohibited by law.

For winners list (available within 4 weeks of the drawing), send a SASE to: Sweepstakes Winners, Computerworld TechnoToys Sweepstakes, 500 Old Connecticut Path, Framingham, MA 01701.

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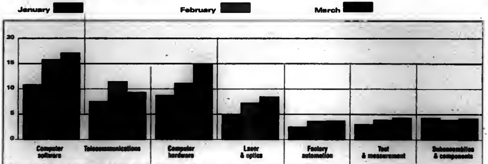
Percent change in number of employees by region



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NEW & NOTABLE

Excel Computer Ltd.

Carrollton, TX April 8, 1997 – Excel Computer Ltd. has announced the newest members of the Excel product family, the Excelerator Towers. The new towers accommodate 7 and 14 drives. Each Tower connects directly to the network and appears as a native NetWare, Windows NT, Unix or HTTP Web Server to network clients. The Towers require that no software or NLM's be loaded which in turn places no burden on the network server. Excel Computer uses only the latest model SCSI CD ROM drives and components for optimal performance and reliability in the Excelerators. Network clients accessing the Excelerator CD ROM drives can use a variety of protocols such as IPX/SPX, TCP over NetBios/NetBEIU, NFS and HTTP. Using multiple protocols simultaneously has simplified the day to day management of network CD ROM retrieval stated Paul Weathers the Technical Manager at Excel Computer. The growth of the Excel product family with the addition of the Excelerator Towers brings full circle Excel's commitment to providing the most extensive line of equipment and CD ROM Networking solutions possible. Customers no have a full range of customized CD Tower Sub-systems, CD Servers, CD Jukeboxes and Rack Mounts at affordable prices.

SoftReach to offer the first LAN-based push technology

SoftReach, a leading provider of Automated Information Delivery applications, announced the availability of NetReach, the company's enterprise communications solution. NetReach is the first implementation of "push" technology for the LAN environment. The product uses a sophisticated network-based screen saver system and broadcast technology to improve communications throughout an organization utilizing existing local area network infrastructure. As computers on your network become idle, multimedia presentation style slides deliver important information to each employee's desk. "The goal is to instantly transform idle computers into valuable assets while improving the ROI in LAN infrastructure," stated SoftReach Vice President Steven Griffith. "NetReach does this without requiring new networking hardware, software or training," he added.
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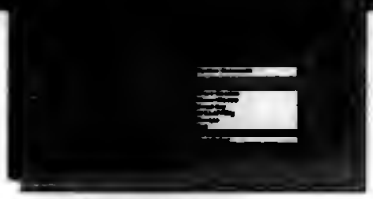

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COMPUTERWORLD JOURNAL
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Production Coordinator: Peggy Hennessy, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 879-0700 FAX: (508) 879-0446

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The Week in Stocks

Gainers

PERCENT

Microcom Inc.	31.4
Compression Labs Inc. (L)	32.1
Learning Co. (The) (L)	26.5
Secure Computing Corp.	22.5
Analysts Int'l	22.4
NetFrame	21.4
Banyan Systems Inc.	19.4
Keane Inc.	18.4

DOLLAR

Microcom Inc.	7.33
Keane Inc.	5.63
Computer Task Group	5.50
Micrel Semiconductor Inc.	5.25
Analysts Int'l	4.75
Computer Horizons	3.75
IBM	3.38
Sapient Corp.	2.50

Losers

PERCENT

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INDUSTRY ALMANAC

A Compaq of convenience

Compaq Computer Corp. (NYSE: CPQ) decided it liked working with remote access technology developer Microcom, Inc. so much, it spent $280 million last week to buy the company.

Compaq began working with the Norwood, Mass.-based remote access developer in November. "We found that our working relationship was so complementary that it just made sense to extend it," said Alan Lutz, senior vice president and general manager at Compaq's Communication Products division. "We wanted to be in the remote access space, and we're delighted that we now are through Microcom."

Microcom believed that it was too small to survive on its own for long, said Lew Bergins, president and CEO at Microcom. "We needed a partner, or we would [eventually] be squeezed out of the market," he said. "Compaq's sales channels and manufacturing efficiencies will be greatly beneficial to us."

Compaq, in Houston, began assembling networking technologies a year and a half ago with its purchase of Networth, Inc. — a manufacturer of Ethernet switches, Ethernet hubs and network management products — and Thomas-Conrad Corp., a developer of network interface controllers.

> "We needed a partner, or we would [eventually] be squeezed out of the market."
> – Lew Bergins, Microcom

Other recent remote access combinations — 3Com Corp. with U.S. Robotics Corp. and Ascend Communications, Inc. with Cascade Communications Corp. — pushed Compaq to find a good remote access partner, said Skip MacAskill, an analyst at Gartner Group, Inc. in Stamford, Conn.

"This area is growing tremendously, and it's the sexy place to be right now," MacAskill said. "In order for these companies to continue to grow, they need to be a player in the hot markets," he said.

Did Compaq pay too much? Abner Germano, an analyst at International Data Corp., a consultancy in Framingham, Mass., said the $280 million price tag is a reasonably fair price because it comes to just slightly less than twice Microcom's yearly revenue.

Compaq is making a tender offer to acquire all outstanding shares of Microcom for $16.25 per share in cash, representing an aggregate purchase price of $280 million. Microcom's board of directors and management team have approved the acquisition and will recommend shareholder acceptance.

Microcom will function as a wholly owned subsidiary of Compaq, with Bergins as its president. — Stewart Deck

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
COMS	51.25	30.43	3COM Corp	32.13	2.00	5.8
AIT	65.00	39.63	Ameritech Corp	57.50	1.00	1.7
ASND	80.25	30.50	Ascend Communications	40.63	-3.50	-7.8
T	43.88	31.63	AT&T	33.25	0.38	1.1
BNYN	10.75	1.63	Banyan Systems Inc.	3.31	0.38	19.4
BAY	26.88	15.38	Bay Networks Inc.	17.00	0.00	0.0
BEL	71.38	43.00	Bell Atlantic Corp	58.88	-0.00	-0.0
BLS	47.63	35.25	BellSouth Corp	40.38	-0.35	-0.0
BRKT	42.25	11.75	Brooktrout Technology	14.50	1.44	10.6
CS	43.38	00.50	Cabletron Systems	29.13	1.13	-3.7
CSCC	91.55	23.50	Cascade Communications	28.00	-2.13	-7.1
CGRM	24.50	9.38	Centigram Communications	10.75	0.13	1.1
CSCO	75.75	43.75	Cisco Systems Inc.	00.94	-0.19	-0.4
CLIX	8.25	1.69	Compression Labs Inc. (L)	2.31	0.38	32.1
CMNT	10.50	4.75	Computer Network Tech	3.38	0.31	6.2
XCOM	12.75	4.75	CrossComm	7.63	0.13	1.1
DIGI	15.88	12.63	DSC Communications	20.13	1.50	5.8
FORE	44.75	10.00	FORE Systems Inc.	15.50	0.25	1.6
GDC	12.88	8.13	General DataComm Inc.	8.63	0.38	5.8
GSX	46.75	35.33	General Signal Networks	37.13	-0.38	-1.0
GTE	50.38	39.73	GTE Corp	39.13	1.13	-2.5
LU	60.63	30.63	Lucent Tech	51.00	-1.75	3.3
MADGF	00.50	0.88	Madge Networks NV	3.25	-0.50	-6.5
MCIC	38.75	22.38	MCI Communications Corp	36.38	0.81	2.2
MNPI	29.50	5.38	Microcom Inc.	13.88	3.13	31.4
NETM	18.00	2.63	NetManage Inc. (L)	2.88	0.25	7.0
NTRX	10.88	3.00	Netrix Corp	3.00	0.13	4.3
NCDI	16.25	2.88	Network Computing Devices	10.00	0.13	1.2
NWK	31.50	11.13	Network Equipment Tech.	11.38	1.00	-6.1
NETG	30.29	15.33	Network General	25.38	-2.44	-11.2
NN	37.25	20.25	Newbridge Networks Corp	28.50	-0.00	-1.7
NT	77.50	43.00	Northern Telecom Ltd	64.00	-0.00	-0.8
NOVL	15.63	9.38	Novell Inc.	9.50	-0.08	-0.7
NYN	13.33	42.00	Nynex Corp	44.13	-0.75	1.7
OCTL	31.75	13.00	Octel Communications Corp	17.50	0.50	3.4
ODSI	27.80	10.75	Optical Data Systems Inc.	12.13	0.38	3.2
PCTL	51.23	9.13	PictureTel Corp (L)	10.00	-0.75	-7.0
PTON	6.50	1.31	Proteon Inc.	2.50	0.38	10.0
RACO	7.50	3.00	Racotek Inc.	3.50	-0.11	-4.0
RETX	10.88	1.18	Retix	1.69	-0.38	-9.2
SBC	35.25	48.00	SBC Communications	50.88	0.25	0.5
SFA	20.38	12.00	Scientific Atlanta Inc.	14.63	-0.50	-3.5
SHVA	87.25	8.25	Shiva Corp	10.31	0.94	10.0
FON	48.00	34.50	Sprint Corp	44.20	0.13	0.3
SMSC	18.75	8.25	Standard Microsystems Corp.	10.13	0.38	2.0
USW	37.25	27.25	U S West Inc.	32.38	-0.38	1.3
USRX	105.50	13.50	US Robotics	54.50	-3.88	-6.0
XIRC	31.13	11.13	Xircom	15.00	-0.38	3.1
XYLN	25.00	13.50	Xylan Corp	15.63	-1.75	10.1

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
AALR	15.25	6.13	Advanced Logic Research	9.88	0.25	2.7
AAPL	30.88	13.25	Apple Computer Inc	18.50	-0.63	3.3
ASTA	5.38	3.94	AST Research Inc	4.09	0.31	7.1
CPQ	57.88	25.28	Compaq Computer Corp	71.38	3.50	-4.7
DELL	80.50	19.75	Dell Computer Corp (H)	30.44	1.50	-2.2
GATE	66.63	31.75	Gateway 2000 Inc	23.50	-2.00	-4.3
HWP	60.00	31.25	Hewlett Packard Co.	49.63	-2.28	-4.3
MUEI	25.00	8.75	Micron International Inc.	22.80	0.13	0.8
NIPNY	65.00	49.88	NEC America	50.75	0.25	0.4
SGI	30.13	17.50	Silicon Graphics	17.88	1.25	-6.5
SUNW	35.13	22.00	Sun Microsystems Inc	18.00	-0.88	-3.0

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
AMH	14.00	5.13	Amdahl Corp	8.51	0.38	4.4
DGN	20.75	9.50	Data General Corp	10.00	-0.13	-0.8
DEC	63.25	25.13	Digital Equipment Corp	25.13	1.75	-6.5
IBM	170.13	89.13	IBM	132.38	3.38	2.0
MDCD	20.25	3.38	Meridian Data Inc	4.00	0.00	1.6
NETF	8.13	1.25	NetFrame	2.13	0.28	21.4
SQNT	20.15	10.50	Sequent Computer Sys.	13.13	1.13	-4.9
SEQS	4.50	1.50	Sequoia Systems Inc.	2.31	0.13	5.7
SRA	35.13	16.63	Stratus Computer Inc.	18.63	-0.38	1.2
TDM	15.25	8.50	Tandem Computers Inc.	11.88	0.25	2.3
UIS	8.15	5.38	Unisys Corp	1.88	-0.75	-2.1

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
ADBE	45.13	28.50	Adobe Systems Inc.	41.50	-1.00	-2.4
AMSWA	7.81	3.75	American Software Inc.	8.63	0.25	5.8
APLX	63.50	3.63	Applix Inc	4.50	-0.06	-1.5
ARSW	82.75	51.50	Arbor Software	18.75	0.69	3.4
ADSK	44.23	18.00	Autodesk Inc	75.94	-4.08	-11.9
BGSS	32.50	14.88	BGS Systems Inc.	30.00	0.00	0.0
BMCS	31.00	25.38	BMC Software Inc	45.88	3.50	-7.2
BOOL	27.38	14.00	Boole and Babbage	22.25	0.00	0.0
BORL	80.25	4.25	Borland Int'l Inc	6.63	-0.13	1.9
BOBJY	35.50	8.63	Business Objects	0.13	-0.25	-2.1
CAYN	10.50	1.81	Cayenne Software Inc	3.38	0.00	0.0
CNTR	8.75	2.83	Centura Software	3.50	-0.60	17.2
COGNF	50.50	18.25	Cognos Inc	38.00	-1.88	-6.5
CA	87.83	37.25	Computer Associates	41.50	1.25	-2.9
CVN	13.25	3.13	Computervision Corp	3.63	-0.13	-3.3
CPWR	69.25	22.75	Compuware Corp	60.00	0.75	1.2
CSRE	30.00	10.75	Comshare Inc	14.50	2.00	16.0
COSFF	13.50	6.13	Corel Corp	5.38	-0.08	1.0
DWTI	6.25	2.63	Dataware Technologies Inc	3.38	0.13	3.6
FILE	54.50	9.88	FileNet Corp	11.63	1.25	12.0
FRTE	81.75	19.00	Forte Software	20.25	-0.75	-3.5
FTPS	18.00	9.75	FTP Software Inc (L)	4.75	-0.03	14.6
HUMCF	47.63	23.00	Hummingbird Comm Ltd	25.00	1.13	-4.3
HYSW	36.38	10.00	Hyperion Software Corp	18.00	0.80	4.0
IRIC	16.38	11.00	Information Resources	12.75	-0.13	1.0
IFMX	31.13	7.50	Informix Corp (L)	1.50	1.00	30.0
INGR	15.69	7.25	Intergraph Corp (L)	8.31	0.75	10.0
LEAF	9.38	1.13	Interleaf Inc. (L)	1.88	-0.25	15.4
ISLI	16.38	8.25	Intersolv Inc. (L)	7.13	0.28	3.6
INTU	33.73	60.00	Intuit Inc	22.31	-1.13	-4.8
TLC	30.31	5.50	Learning Co. (The) (L)	7.38	1.38	26.5
LGWX	22.25	5.25	Logic Works	3.63	0.06	0.0
MAPS	18.00	7.50	MapInfo Corp	8.38	0.25	3.1
MATH	9.25	2.31	MathSoft (L)	2.75	0.13	4.8
MCAF	85.50	23.63	McAfee Associates	44.38	-2.00	3.6
MENT	18.50	3.50	Mentor Graphics	3.50	-1.88	15.2
MIFGY	27.25	8.25	Micro Focus	20.25	0.00	4.5
MGXI	18.63	8.00	Micrografx Inc.	5.50	0.19	3.4
MSFT	103.50	49.88	Microsoft Corp	89.50	-0.13	-0.1
ORCL	31.88	26.50	Oracle Corp	30.50	-2.59	-5.9
PMTC	38.25	33.75	Parametric Technology	41.38	5.38	3.8
PARQ	14.63	1.19	ParcPlace Systems Inc	1.00	0.11	0.1
PSFT	56.75	23.88	PeopleSoft	34.06	-4.06	-10.7
PTEC	20.38	31.25	Phoenix Technologies (L)	12.38	-2.88	18.9
PSQL	75.75	3.50	Platinum Software	8.88	-0.00	0.8
PLAT	10.75	9.25	Platinum Technology	17.13	-0.38	7.7
PRGS	33.00	12.13	Progress Software Corp	16.25	0.13	0.8
RNBO	54.00	14.63	Rainbow Technologies Inc.	17.25	0.88	5.3
REDB	81.38	8.25	Red Brick Systems Inc (L)	8.88	-0.38	-4.2

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
SAPE	60.75	20.75	Sapient Corp	34.00	5.50	7.0
SCOC	9.33	4.50	SCO Inc (L)	4.00	-1.20	-25.0
SDTI	54.50	21.00	Security Dynamics Tech.	27.50	-0.25	-0.5
SOTA	25.75	8.88	State of the Art (L)	9.63	-0.19	-1.9
SSW	81.38	27.33	Sterling Software Inc	28.63	0.69	2.3
SDRC	37.50	15.00	Structural Dynamics Research	20.25	-0.26	-2.6
SYBS	37.75	12.13	Sybase Inc.	13.00	1.00	-10.8
SYMC	18.50	8.75	Symantec Corp	14.00	-0.25	-1.7
SNPS	60.00	21.75	Synopsys	24.50	-3.33	-13.8
SSAX	25.25	4.50	System Software Assoc.	8.00	-1.00	-10.8
SYSF	30.50	1.63	Systemsoft Corp	8.06	-0.75	-8.1
TRUV	4.63	2.25	Truevision Corp	2.63	-0.06	-2.6
VIEW	17.00	5.38	ViewLogic Systems	13.00	0.75	0.3
VMRK	12.63	3.18	VMark Software Inc	2.03	0.50	8.2
WALK	15.63	5.38	Walker Interactive Systems	13.80	1.13	10.1
WALL	27.50	12.25	Wall Data Inc	16.38	-0.13	-0.8
WANG	20.15	15.28	Wang Laboratories Inc	17.00	0.00	0.4

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
AOL	50.50	22.38	America On-Line	35.75	-2.03	3.4
BBN	50.75	15.63	BBN Corp	16.00	-0.63	-3.0
CSRV	39.50	8.03	CompuServe Corp	11.88	-1.34	-10.4
EDFY	69.25	10.13	Edify Corp	30.63	0.29	2.4
LCOS	22.75	5.75	Lycos Inc	14.75	-0.81	-5.2
NETC	44.50	7.00	Netcom On-Line	8.50	0.08	0.7
NSCP	75.25	30.50	Netscape Comm. Corp	35.88	-4.20	14.3
OMKT	50.25	8.60	Open Market Inc	10.11	0.50	0.0
PSIX	19.18	6.00	PSINet	8.50	-0.75	0.6
QDEK	17.50	5.50	Quarterdeck Corp	2.50	-0.38	-25.6
RAPT	18.00	12.00	Raptor Systems	13.75	0.13	0.0
SCUP	38.75	4.75	Secure Computing Corp	8.13	1.13	22.5
SPYG	34.88	5.38	Spyglass Inc. (L)	8.38	-0.88	-12.1
YHOO	43.00	13.00	Yahoo! Inc.	13.00	1.00	4.3

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
AMD	38.50	10.25	Advanced Micro Devices	37.28	-2.38	-6.0
ADI	38.25	12.75	Analog Devices Inc.	25.63	-2.00	-7.6
CHPS	18.00	1.75	Chips and Technologies	10.75	0.81	8.3
CRUS	25.38	10.63	Cirrus Logic	12.63	1.25	11.0
CY	16.63	9.13	Cypress Semiconductor Corp	13.50	0.13	1.0
CYRX	36.50	11.50	Cyrix	18.63	0.25	0.1
INTC	165.00	59.28	Intel Corp	140.63	-13.38	8.3
LSCC	54.28	19.75	Lattice Semiconductor	47.00	0.19	0.3
LSI	42.38	17.00	LSI Logic Corp (H)	27.75	-0.63	-1.0
MCRL	41.00	12.00	Micrel Semiconductor Inc.	18.25	5.25	16.9
MU	38.25	38.63	Micron Technology	39.38	1.13	3.0
MOT	60.75	44.13	Motorola Inc	52.25	-1.38	-2.3
NSM	32.25	13.00	National Semiconductor	18.50	-2.60	-0.0
TXN	00.38	40.00	Texas Instruments (H)	00.50	0.00	0.0
VLSI	30.25	10.38	VLSI Technology	17.00	-0.50	-2.3
XLNX	53.50	24.00	Xilinx (H)	46.38	3.63	-7.3
ZILG	80.38	14.88	Zilog Inc.	31.38	-0.13	-0.0

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
ADPT	46.88	17.00	Adaptec Inc	34.36	3.19	-0.4
APCC	35.38	0.50	American Power Conversion	30.75	0.38	1.8
CBEX	1.63	1.25	Cambex Corp	1.23	0.50	0.0
CREAF	35.13	3.50	Creative Technology Ltd	11.63	0.25	-2.1
RACE	24.00	3.75	Data Race Inc	11.13	-2.25	16.0
DTM	12.50	4.88	Dataram Corp	8.50	0.08	4.1
EMC	41.75	30.00	EMC Corp (H)	37.50	1.13	-3.6
EMLX	31.38	12.88	Emulex Corp	16.75	1.00	0.0
ESCC	75.50	19.50	Evans and Sutherland	23.11	-0.63	-3.0
EXBT	22.75	0.00	Exabyte	12.88	0.25	2.0
ISLF	4.13	1.88	Intelligent Info. Systems	1.44	-0.13	0.0
IOM	33.13	12.63	Iomega Corp	13.00	0.50	1.0
IPLS	8.25	1.25	IPL Systems Inc.	1.88	0.00	3.4
KMAG	37.00	17.63	Komag Inc.	29.44	1.94	8.4
MTSI	19.75	13.00	MicroTouch Systems Inc	19.88	-3.38	-14.3
PEAK	27.50	8.50	Peak Technology Group	11.75	-0.00	-3.1
PNCL	12.00	3.00	Pinnacle Micro Inc	2.00	-0.44	17.9
AQM	8.75	1.75	QMS Inc	4.25	0.00	0.0
QNTM	50.11	30.88	Quantum Corp (H)	42.63	-0.63	1.4
RDUS	4.88	0.78	Radius Inc	0.31	0.00	0.0
SEG	80.25	18.13	Seagate Technology	45.00	5.38	10.3
STK	54.50	24.00	Storage Technology	37.88	-3.88	-9.3
STLC	8.75	0.53	StreamLogic Corp	5.38	-0.11	10.2
TEK	53.75	32.25	Tektronix Inc (H)	52.25	1.00	2.1
WDC	77.25	30.00	Western Digital Corp	81.00	3.50	-4.3
XRX	60.25	42.25	Xerox Corp	58.11	1.25	-2.2

Ticker	52-Week	Range		Apr 11 Close	Wk Net Change	Wk Pct Change
AMS1	17.13	15.75	American Mgmt. Systems	19.13	2.25	38.5
ANLY	30.50	16.88	Analysts Int'l	26.50	4.75	22.4
AUD	39.75	35.63	Auto Data Processing	41.75	1.00	3.2
BDMF	80.75	30.13	BDM International Inc	22.50	1.63	7.6
CATP	31.25	38.63	Cambridge Tech Partners	31.01	-0.31	3.3
CEN	54.50	80.00	Ceridian Corp (L)	30.00	-2.25	-7.0
CDO	31.50	31.50	Comdisco Inc.	00.25	0.00	0.0
CPU	30.88	13.25	CompUSA Inc	18.13	1.00	5.8
CHRZ	54.50	25.50	Computer Horizons	35.50	3.75	11.6
CSC	86.00	38.25	Computer Sciences	62.13	-1.38	-2.4
TSK	47.38	21.75	Computer Task Group	42.00	5.50	15.1
CDAT	18.63	12.75	Control Data Systems Inc	13.38	0.11	0.6
EGGS	13.88	4.13	Egghead Discount Software (L)	4.13	-0.15	-2.9
EDS	63.50	00.13	Electronic Data Systems Corp	39.33	-0.63	1.6
INAC	30.63	15.50	Inacom Corp	22.75	-0.13	-0.5
INEL	11.50	3.81	Intelligent Electronics	1.44	0.13	1.6
KEA	37.88	14.63	Keane Inc	36.25	5.63	18.4
MICA	25.00	9.63	MicroAge Inc	13.00	-0.25	1.8
PAYX	63.63	38.13	Paychex	44.44	0.31	0.7
PMS	53.50	33.11	Policy Management Sys	43.63	0.63	1.8
REY	30.63	21.50	Reynolds and Reynolds	22.88	-0.75	-3.2
SCBI	30.50	14.44	SCB Computer Tech. Inc.	17.25	-0.25	-1.6
SEIC	30.50	17.75	SEI Corp	20.75	0.11	0.0
SMED	72.11	42.25	Shared Medical Systems	45.00	-4.33	-8.5
SSPE	33.50	11.50	Software Spectrum Inc (L)	13.50	1.00	-0.0
SNDT	50.75	31.25	SunGard Data Systems	44.44	0.88	1.8
VST	29.75	8.88	VanStar Corp	7.13	-0.81	-8.1

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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How to contact Computerworld

TELEPHONE/FAX

Main phone number .... (508) 879-0700
All editors unless otherwise noted below
Main fax number .... (508) 875-8931
24-hour news tip line .... (508) 820-8555

E-MAIL

Our Web address is www.computerworld.com
All staff members can be reached via E-mail on the Internet using the form:
firstname_lastname@cw.com
All IDG News Service correspondents can be reached using the form:
firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to:
letters@cw.com.
Please include your address and telephone number

MAIL ADDRESS

PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701

SUBSCRIPTION/BACK ISSUES

Phone .... (800) 669-1002
E-mail .... circulation@cw.com.
Back Issues .... (508) 820-8129

REPRINTS

Phone .... Michelle Olk, (800) 217-7874

CONTACTING CW EDITORS

We invite our readers to call or write with comments and ideas. It is best to submit ideas to one of the department editors as well as to the appropriate beat reporter

Editor Paul Gillin (508) 620-7724
Executive Editor Maryfran Johnson (508) 820-8179

Department Editors/News

News Editor Patricia Keefe (508) 820-8183
Sections Editor Kevin Fogarty (508) 820-8246
Assistant News Editor Neal Weinberg (508) 820-8177
Assistant Sections Editor Michael Goldberg (508) 620-7789
Online Editor Johanna Ambrosio (508) 820-8553
Online News Editor Judith H. Bernstein (516) 266-2863
Associate Editor, News Mitch Betts (202) 347-6718

Senior Editors/News

Groupware, E-mail, messaging Barb Cole-Gomolski (760) 728-8858
LANs, operating systems Laura DiDio (508) 820-8182
Network/systems management Patrick Dryden (817) 924-5685
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Databases Craig Stedman (508) 820-8120
Midrange hardware, Unix operating systems Jaikumar Vijayan (508) 820-8220
Electronic commerce, Internet Mitch Wagner (415) 548-5573
Internetworking Bob Wallace (508) 820-8214

Senior Writers/News

Mobile computing, social issues Mindy Blodgett (508) 820-8168
PCs, servers, net computers April Jacobs (508) 820-8121
Security, government Sharon Machlis (508) 820-8231
Mainframes, high-end storage Tim Ouellette (508) 820-8215

Staff Writers/News

@Computerworld Stewart Deck (508) 820-8155
Telecommunications Kim Girard (508) 820-8223
New products, multimedia, low-end storage Matt Hamblen (508) 820-8567
Intranets Justin Hibbard (415) 548-5515
@Computerworld Patrick Thibodeau (508) 820-8143
Client/server software, Unix apps Randy Weston (508) 628-4869
@Computerworld Wylie Wong (415) 548-5581

Opinions

Technical Editor Charles Babcock (415) 548-5512
Columns Editor Mitch Betts (202) 347-6718
Staff Columnist Frank Hayes (503) 252-0100

Department Editors/Features

Technology reviews/Buyer's Guide James Connolly (508) 820-8144

Senior Editors/Features

Buyer's Guide Cathleen Gagne (508) 620-7729
Careers David B. Weldon (508) 820-8166
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Managing Allan E. Alter (508) 620-7714
Special reports Gary H. Anthes (202) 347-0134

Associate Editors/Features

Managing Rick Saia (508) 820-8118

IDG News Service Correspondents

Paris bureau chief Jeanette Borzo (33) 1-4904-8001
Munich correspondent Torsten Busse (49) 89-811-6057
UK correspondent Kristi Essick (44) 171-416-0701
Hong Kong bureau chief Jon Skillings (852) 2535-4661
Tokyo correspondent Bob Guth (81) 33-358-6122
Taipei correspondent Terho Uimonen (88) 62-500-6525

Research

Bob Fink, senior research manager (508) 820-8118; Kevin Burden, senior researcher; Laura Hunt, research analyst; Amy Malloy, associate editor; Stefanie McCann, senior graphics coordinator; Mari Keefe, online researcher.

Copy Desk

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Administrative Support

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Alan Alper, editor (508) 820-8115; Mary Brandel, executive editor; Anne McCrory, Catherine McCrorey, Joyce Chutchian-Ferranti, managing editors; Kimberlee A. Smith, assistant managing editor and online coordinator; Stephanie Faucher, art director.

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Contact: Johanna Ambrosio, Online Editor, (508) 820-8553 or johanna_ambrosio@cw.com.

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Chevron's Jim Nathlich will help roll out a Microsoft-only desktop configuration to 27,500 users

Netscape in transition

CONTINUED FROM COVER 1

er. The reason: Internet Explorer's lockstep integration with other Microsoft products, which had already been selected as corporate standards. Still others are concerned about whether the $346 million Netscape can deliver the high-caliber customer support they require.

"They're moving at a very fast pace and into some very difficult challenges ahead," said John Swartzendruber, a senior information consultant at Eli Lilly & Co. in Indianapolis.

The top item on Swartzendruber's list is support.

"If you buy a large contract for software and services, that implies software *and* services," he said. "When you have problems, you want them to be dealt with efficiently and to get the right answers."

Netscape is working on customer support concerns, said Mike Homer, senior vice president of marketing at the Mountain View, Calif., company.

About 300 people were hired in the past six months to staff sales and field support offices, bringing the total there to 800. For customers who would rather rely on known quantities, Netscape signed support deals with IBM, Hewlett-Packard Co. and others, Homer said.

Those moves are part of Netscape's preparations to back up its entry into E-mail and groupware markets this quarter. The company plans to ship an upgrade to its client software, dubbed Communicator 4.0.

Also expected are server-side upgrades in the form of SuiteSpot 3.0. Those products are in beta testing now.

Combined, the offerings aim to take on groupware granddaddy Lotus Notes, along with Microsoft Exchange.

But the recent defections from big user sites signal the difficulty Netscape faces in hanging on to its customers in the face of a Microsoft onslaught.

Chevron Corp., Reynolds Metals Co., FINA Oil and Chemical Co., Continental Airlines, Inc. and Intergraph Corp. all recently either dropped Navigator for Internet Explorer or decided against Navigator altogether.

Chevron, for example, is distributing a common desktop configuration, based on Microsoft products, to 27,500 PCs.

Doing so lets the oil company "work with Windows to have the installation script place Internet Explorer on the desktop, connect it with Exchange and set it up with Word," said Jim Nathlich, a technical analyst at Chevron Information Technology Co. in San Ramon, Calif.

"It's just a lot easier for us to set those things up with Internet Explorer than it is with Netscape," Nathlich explained.

CROSS-PLATFORM

It was simplified support that persuaded Reynolds Metals to go with Microsoft Explorer.

"The bottom line is support," said Matt McLean, a systems analyst at Reynolds. "We can't afford to provide support for every browser."

But not all companies rely on desktop applications as much as Reynolds and Chevron. Companies that centralize applications on servers are more likely to benefit from Netscape software, said Sherman Woo, director of US West Communications, Inc.'s Global Village Labs in Denver. US West uses Netscape's SuiteSpot suite of servers and 50,000 copies of Navigator.

Reynolds' Matt McLean: The browser debate comes down to money; Microsoft Explorer is free, Netscape Navigator isn't

"We don't worry about the word processor or spreadsheet you're running," Woo said. "It's having a universal interface that you can use to access the server that we care about."

Cross-platform support also is a differentiator for Netscape, said Michael Prince, chief information officer at Burlington Coat Factory Warehouse Corp. in Burlington, N.J.

Netscape's Web servers run on Windows NT and at least a dozen flavors of Unix and other operating systems. Microsoft is Windows-only. That "gives me an alternative to Microsoft, and that's where Netscape's strength lies," Prince said.

But building server-centric programs for Netscape requires Java and JavaScript expertise. So far, the number of Java-trained IS developers lags behind those using Visual Basic and other Microsoft tools.

International Data Corp. in Framingham, Mass., estimates Visual Basic seats total 1.7 million, compared with about 400,000 for Java.

It could take another year or more before Java is as well entrenched among developers, Homer acknowledged.

Given all those factors, Netscape's move into E-mail and groupware will be intensely competitive, said Bruce Smith, an analyst at Merrill Lynch & Co. in New York. "I'm concerned whether they can break in to that space," he said.

Wall Street is anxiously awaiting Netscape's first-quarter financials, due next week.

At least 14 analysts have lowered their profit and sales forecasts for Netscape in the past three months, according to First Call Corp., an investment research firm in Boston. ❑

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #0985697. Computerworld (ISSN 0010-4841) is published weekly: except a single combined issue for the last two weeks in December by Computerworld, Inc., 500 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171. Copyright 1997 by Computerworld, Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights, permission to photocopy for internal or personal use is granted by Computerworld, Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus $.50 per page is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Michelle Olk, Computerworld Reprints, c/o Reprint Services, 315 Fifth Ave. Northwest, St. Paul, Minn. 55112. (800) 217-7874. Fax: (612) 633-1861. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $3 a copy. U.S. — $48 a year. Canada — $110 a year. Central & So. America — $150 (surface) a year. Europe — $295 a year; all other countries — $295 a year. Subscriptions call toll free (800) 552-6431. POSTMASTER: Send Form 3579 (Change of Address) to Computerworld, Box 2044, Marion, Ohio 43305.

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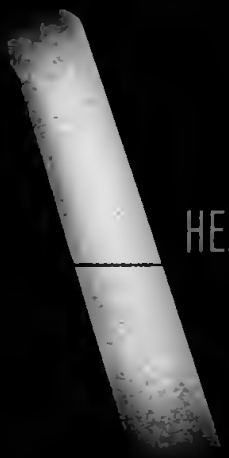

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COMMENTARY

Raiders of the lost company

David Coursey

So Larry Ellison wants to know what I think of what he calls his plan to save Apple. When Ellison comes up with a plan, I'll write a column telling him what I think of it. Until that glorious day, how about if I comment on Ellison's plan to drive Apple into the ground?

For those of you who've missed a few episodes of the daytime drama *As the Apple Swings*, Oracle President and CEO Ellison has floated the idea of a hostile (I believe) takeover of Apple Computer. Meanwhile, Saudi Arabian Prince al-Waleed bin Talal claims to have bought 5% of Apple and promises to help sort out the mess.

Ellison seems to have delusions of someday becoming Bill Gates. Or at least of becoming Steve Jobs, the social misfit generally considered to be Ellison's good buddy. (Sure, Ellison has lots more money than Jobs, but Jobs gets more respect, albeit grudgingly.)

There are stories all over Silicon Valley about Steve and Larry playing one-upmanship games: Who has the bigger Internet pipeline at his house, the faster car, the better toys — you get the idea. One theory about why Ellison wants Apple is that he'll get something he'd never get any other way: Jobs as an employee.

That might be funny — grown men playing out their power fantasies in public — except that Jobs and Ellison are playing with other people's livelihoods, other people's money and products that other people have invested in.

If Ellison really wants Apple, he just has to sit down and cut the check. The public posturing is just another Ellison scheme to get attention. The database business is, after all, boring. But corporate raiding — well, that gets a guy noticed.

To me, Ellison looks an awful lot like a cat playing with a mouse it doesn't plan to eat. You know, knocking the poor rodent around, grabbing it when it runs away, ultimately killing it — accidentally — before walking away to find another victim.

The big concern with Apple — besides Ellison and his investor friends — is that the company may run out of money before anything good happens. My fear that Apple sales would plummet amid uncertainty seems to have been realized. (I'd call the company to find out for sure, but since Apple laid off its public relations department, I'm not sure whom to call anymore.)

Gil Amelio has taken some steps toward solving Apple's problems, although listening to Jobs about whom to fire and whom to keep isn't one of them. And the Ellison angle (with or without Jobs' support) does even more damage.

So, Larry, here's what I'm telling people: "Ellison doesn't know how to solve Apple's problems any more than current management does. Any change in ownership is likely to capsize an already shaky boat. Given the great uncertainty, even though I love my Macintoshes, I can't recommend that anybody purchase one until things settle down. That may be playing into Ellison's hands, but I don't know what else to do."

At some point, people who support Apple need to do so with their dollars — I am already doing this — but it's hard to recommend while the company finds itself in stranger and stranger circumstances every day. □

Coursey, an analyst and consultant, is editor of "Coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

Lapse leaves many socially insecure

Frank Hayes

There it was, first on the front page of last Monday's *USA Today* and then in every other paper in the country: Thanks to the Internet, Social Security was insecure. *Computerworld* covered the story in our April 7 issue, pointing out that by using the Social Security Administration's World Wide Web site, anyone who knows your Social Security number, your mother's maiden name and the state you were born in could instantly access your financial history.

That means divorce lawyers, prospective employers, credit agencies and nosy reporters could all see how much you made each year — dating back to 1951.

In other words, some of the most confidential government information about you spent the month of March available to anyone with a little personal information and a Web connection at the local public library.

Here's the best part: That information wasn't available because of some new bug in ActiveX or a hole in the Social Security firewall. Nope. Your financial history (and that of most U.S. citizens) was available because the Web site was doing *exactly what it was designed to do.*

Don't panic — Social Security officials pulled the plug on the service at the site, which was at www.ssa.gov. And before you start snickering about clueless bureaucratic pinheads who don't know the first thing about protecting their data, consider this: You may be exposing your customers' confidential information in exactly the same way. You just aren't on the front page of *USA Today*. Yet.

Social Security's security troubles didn't appear because the agency was trying some wild new idea on the Web. It was exactly the same approach that many corporate Web sites are taking: Use the Web as a front end to existing corporate information systems and let customers directly access their own data.

Customers like that direct access. Companies like it because they don't have to pay clerks to dig out and deliver that data. Sounds like everybody wins, right?

Last year, the Social Security Administration mailed out financial histories to 4 million people. Each one cost more than $5 to produce. Delivering the same information through the Web site costs less than a penny per request. Potential savings: $20 million. How's that for cost justification?

The trouble is, by cutting out the costly human clerks and postal delivery, the Web site also cut out most of the system's security.

After all, delivering the information by mail tends to discourage fraudulent requests because it's much easier to track down where the information went.

Social Security's information systems were built with the assumption there would be a responsible employee at the keyboard, someone who would make sure information was only going to the right person.

And when the Web-enabled version sliced away the de facto security layer, Social Security — which historically has been one of the most tight-lipped federal agencies when it came to releasing information — turned into a blabbermouth.

The good news is that it only took a month and about 60,000 information requests before Social Security officials shut down the service at the site. If it returns — which seems likely — security will be beefed up, legitimate information requests will still be fulfilled and taxpayers will save money.

The bad news? Plenty more legacy applications will be Web-enabled in the months to come. Most of those systems were built assuming that an intelligent, sane and responsible employee would stand between corporate data and the outside world.

And on the Web, that's not a secure assumption at all. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

The Back Page

altcw

Dispatches & Images from the Fringes of the Electronic Frontier

Patent watch

Recently issued U.S. patents (patent number, inventor/assignee, date issued)

Hotel guest registration and access system that uses a credit card as the room key. Guests use their credit card to register at a computer terminal, which assigns a room and sends a wireless signal ordering the room's door lock to open when the credit card is inserted. (5,614,703, Jay R. Martin and Scott E. Martin, March 25)

Computer-based car tire inflation system for inexperienced customers at service stations. The system prompts the user for the vehicle type and makes sure the selected tire pressure is correct. (5,611,875, Anthony A. Bachhuber, March 18)

Low-cost kit that cleans the tracking ball of a computer mouse and mouse pad. The kit includes a container with a tacky liner that removes dirt from the mouse ball. The same tacky coating on a roller can also remove dirt from the mouse pad. (5,615,438, Todd G. Field, April 1)

Source: MicroPatent (www.micropat.com)

Send your alt.cw contributions to mbetts@cw.com. If your item is used, you'll receive a cool T-shirt.

READING YOUR SCRAWL

Selected U.S. post offices have started using an artificial intelligence system that seemingly does the impossible: it reads and interprets handwritten addresses for mail-sorting equipment. The Handwritten Address Interpretation (HWAI) system was developed at the State University of New York at Buffalo. HWAI divides the address block into segments such as city, state and ZIP code and matches each word image with a database of valid addresses.

Last rites

A Buddhist monk in Japan last week opened a "virtual temple" on the internet to give a "memorial service" for unnecessary information, according to a sketchy report from Agence France-Presse. The report said Shokyo Ishiko, 59, head priest at the Daioin Temple in Kyoto, will offer spiritual counseling at the virtual Information Temple, including prayers for outdated computer software and aborted business plans.

When in Rome ...

Downloading E-mail in Europe one week, surfing in Australia the next? The $450 WorldPak from TeleAdept in San Jose, Calif., provides 39 adapters that let you plug in your modem cable to the analog telephone systems of 260 countries.

Inside Lines

[illegible]

We recently lobbed a dart at Steve Heller's new book, C++ Training Guide. Well, we won't be poking fun at his books again any time soon! A swarm of his fans launched a stinging counterattack of flame mail, praising his book and the quality of his writing. One reader even compared Heller's prose to Richard Burton's acting. The book may not name sources of the "Reader comments" it mentions on the cover, but, as we found out, they really do exist. If you've read a stirring book, or if you have a news tip, contact news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.

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For complete benchmark data, visit our web sites: **www.compaq.com** and **www.microsoft.com**

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